THE BUILDER

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SUPPLEMENT:—

Reviews of Books.

Lord Balcarres's "The Evolution of Italian Sculpture"; M. and E. Marriage's "The Sculptures of Chartres Cathedral"; O. M. Potter's "The Colour of Rome: Historic, Personal, and Local"; G. M. Ellwood's "English Furniture and Decoration, 1680-1800"; "Memorials of Old Yorkshire"; R. W. Billings's "The Baronial and Ecclesiastical Antiquities of Scotland," Parts XVII. to XX.; P. T. Harrison's "Bungalow Residences"; "Lockwood's Builder's, Architect's, Contractor's, and Engineer's Pricebook for 1910"; "Laxton's Builders' Price-Book for 1910"; "Spon's Architects' and Builders' Pocket Price-Book"; W. P. Gerhard's "The Sanitation, Water Supply, and Sewage Disposal of Country Houses"; H. S. Jacoby's "Structural Details"; T. Potter's "Buildings for Small Holdings"; "The Encyclopædia of Practical Engineering and Allied Trades," Vol. X.

Illustrations.

The Liverpool Cotton Exchange: Exterior View. Messrs. H. A. Mather & F. W. Simon, FF.R.I.B.A., Architects.

Design for Cornwall County Council Offices. By Mr. Robert Atkinson.

Additions to "Piper's Corner," High Wycombe, Bucks. Mr. L. Rome Guthrie, Architect.

Illustrations in Text.

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About Stained Glass.

THE issue of a third edition of Mr. Lewis Day's work on stained glass windows* is evidence of the popularity of the book, which, indeed, in spite of certain weaknesses, remains the only work on the subject which can be called popular. The new edition, however, is a great improvement on its predecessors. The text has been revised and enlarged, and in many parts completely rewritten in the light of Mr. Day's later study. Above all, there is a great improvement in the illustrations. To the rather unsympathetic and often inaccurate pen-and-ink drawings with which the first edition was illustrated there have been added a large number of reproductions of photographs either from the actual glass or from very careful water-colour drawings by the late Charles Winston and others. Those of Winston in particular are, but for colour, almost facsimiles of the originals. We cannot help being surprised, however, that Mr. Day has been content to retain in this edition the very hasty and inadequate drawing of the famous "Hell" from Fairford west window, on page 363. Quite respectable photographs of this window are to be bought on the spot, which would have given a far more satisfactory idea of the original than this. On the other hand, the very careful drawing on page 375 of what is one of the oldest windows in Canterbury Cathedral (Fig. 1), and may belong to the twelfth century, is a valuable record of a piece of glass that from its position in the triforium is not easily seen by the ordinary visitor.

Mr. Day has avoided any attempt at coloured illustration, perhaps wisely, for it is doubtful whether, with all the modern improvements in colour reproduction, it would be possible to give anything of the real beauty of the glass by this means except at a prohibitive price.

Of the beginnings of stained glass we know nothing certain. Glass windows were introduced even into England as early as A.D. 675, but we hear nothing of colour or painting in connexion with them. Coloured windows of some sort are, however, alluded to both by St. Jerome and St. Chrysostom, and are frequently mentioned in church records of the XIth century, but the earliest surviving examples cannot be dated further back than the XIIth century, and in them the technique is, except for the two later inventions of abrasion and silver stain, as fully developed as at the present day.

Mr. Day's suggestion that the art was brought from the East by the Venetians in the XIIth century is not very convincing. The earliest date which he gives to the Arabian lattices of coloured glass set in stone or plaster is the XVIth century, when European stained glass was beginning its decline. No doubt they existed long before this, but Mr. Day gives no evidence of their use even in the XIth century, when the art was already fully developed in Europe. It is surely quite as possible that the East caught the idea from the West. Still less convincing is the attempt to trace the origin of the art in cloisonné enamel.

Indeed, these attempts to find a parentage for stained glasswork in other arts seem to us rather unnecessary. Probably both European stained glass and the Arab coloured lattices had a common origin in the Roman Empire. Seneca mentions "Specularia"—transparent panes—set in stonework as one of the luxuries that had been introduced into life in his day, and window glass set in bronze lattices has been found at Pompeii (white window glass—blown, not cast, and of a very superior quality, has, by the way, been found at Silchester). Once given the idea of filling a window space with pieces of glass set in metal, and given also the knowledge of the manufacture of coloured as well as white glass—and this was known far back in the history of Egypt—the use of colour to decorate the glazing was a natural and almost inevitable step. Indeed, Mr. Day says as much on page 15:—

> "The germ of it lay in the circumstance that stained glass was originally made in comparatively small pieces—there were no large sheets of glass a thousand years or more ago—and so it was necessary in order to glaze any but the smallest window that these pieces should be in some way cemented together. It followed naturally, in days when art was a matter of everyday concern, the common flower of wayside craftsmanship, that the idea of putting these pieces together in a more or less ornamental fashion should occur to the workman, since they must be put together somehow; and so as a matter of course would be developed a mosaic of transparent glass—the form that coloured windows first took."

The real invention that made possible the development of stained glass, as we know it, was the use of opaque brown enamel on the glass, and this belongs wholly to the West. Only a stained-glass painter knows the power

* "Windows." A book about stained and painted glass. By Lewis F. Day. Third Edition, revised and enlarged. Pp. 403. London: B. T. Batsford. 1909. 21s.

Fig. 1. From Choir, Canterbury Cathedral.

this gives him of controlling and harmonising the effect of his glass. Coloured glass without white is like jam without bread, but clear white glass tends to kill the colour that is put with it. It is only when subdued and softened, either as in the early periods by solid black line work and opaque grounds with the pattern just picked out, or as in later times by soft semi-transparent shading, that it will blend with the coloured glass, and allow the latter to glow in its full beauty.

Mr. Day's book derives its interest from the fact that it embodies the impressions of one who, besides having looked at an immense amount of glass and having a great love for it, is himself a designer in it. This gives his work a value which is notably absent in the work of the late Charles Winston, whose advice, when taken on modern work, was, for all his patient study, apt to prove disastrous in result; but any one who looks in the present work for very close and critical comparative study of the ancient glass will be disappointed. The author himself says in the Preface:—

> "Minute investigation of purely antiquarian questions connected with the subject was not within my scope—it seemed to me safe enough in the hands of Winston, Mr. Westlake, and the many continental authorities with whose learned writings this more practical and in a sense more popular volume does not enter into competition." . . . "All I have to tell is what windows have told me, or what I understood them to say."

We cannot help thinking, however, that with a little more of this "minute investigation" the windows might have told Mr. Day a little more. For instance, an appreciation of the very subtle but distinct difference between XIIth and XIIIth century glass could hardly fail to be instructive.

We are not sure that any writer has yet drawn attention to these differences except the late Mr. Joyce, who in some MS. notes in South Kensington Library notices with some surprise the superiority of the oldest work at Canterbury. The difference is slight, but it is there, and as far as we can judge from the few remains of XIIth century glass that have come down to us it is all in favour of the older work, in which we find greater dignity and restraint, rather better drawing, and greater refinement in execution. It would seem as if in the XIIIth century there is a slight increase in facility, but also in vulgarity; while at its close, in the beginning of the so-called Decorated period, there is a very decided decline in taste, which Mr. Day himself notices.

It is perhaps, however, hardly fair to condemn the whole Decorated period as uninteresting, as Mr. Day does. It is a period of confusion and transition ending in recovery, and it has all the interest which attaches to such periods, with the added interest of a temporary return to natural forms in ornament such as has been preached in our own day. It was during this period, too, that the discovery was made that white glass could be stained yellow where desired by the use of silver, and this discovery profoundly modified the style of design. It not only assisted the worker in the blending of the white with the coloured glass, but it enabled him to make the white glass interesting in itself, and consequently from the time of its introduction there is a remarkably rapid increase in the proportion of white glass used with the colour. In the fine XIVth century windows in the nave of York Minster there is no use of silver stain, and the elaborate canopy work with all the lively company of birds, monkeys, and what not, by which it is inhabited, is executed in "pot metal" of a rather heavy yellow. To get the requisite illumination the artist has arranged panels of white quarries alternating with his figure and canopy-work, and forming horizontal bands across the lights. On the other hand, in the great east window of Gloucester Cathedral (Fig. 2), which was executed only six years later in the year 1336, the canopies and figures are entirely of white glass, touched with silver stain, and relieved alternately against backgrounds of ruby and blue. Mr. Day, on this account, is inclined to class the window with the Perpendicular period, but this hardly seems reasonable. The Decorated period in glass only hangs together as a period at all by the structure of its design and its architectural detail, and in the Gloucester window these are all typically decorated, in marked contrast to the actual stonework of the window,

Fig. 2. From East Window, Gloucester Cathedral.

which certainly is pure Perpendicular—perhaps the earliest example known. Cases are, however, not uncommon in which the style of the glass has lagged behind that of the architecture that contains it. Besides, there are white and stain canopies in the glass in the

Fig. 3. From New College, Oxford.

choir at Wells which Mr. Day classes as Decorated work.

Winston gives the year 1380 as marking the beginning of the Perpendicular period in glass. It was in this year that the glass in the ante-chapel of New College, Oxford, was finished (Fig. 3), and this is the first work in which the designer definitely breaks away from the Decorated style in his architecture, although this (as may be seen in the illustration) still differs considerably in detail from the typical canopies of the Perpendicular period. These windows, as well as those executed for Winchester College chapel, of which three lights are in the Victoria and Albert Museum (having been "restored" out of their original home), are the work of one Thomas the Glazier, who worked for William of Wykeham, and who, it may be, was the original genius who gave the new movement its direction and determined its character. Why new life should have come into the art just when the misery and poverty in England was about to culminate in the peasants' revolt it is difficult to say, but so it was.

The next seventy years may be considered the golden period of English stained glass, during which English artists were producing far finer work than any on the Continent, work having all the refinement which seems to characterise all English craftsmanship of the period. They seem, however, still to have imported the best of their material from France. Possibly sufficiently good sand was not to be found in England, for at the present day we believe the best sand for the purpose is imported from the Continent. It was just at the beginning of the XVth century that what is perhaps its crowning glory—the east window of York Minster—was executed. This window has all the jewel-like quality of the earliest glass, with a refinement of finish and a meaning in the use of colour which is all its own. It may be objected that it is inartistic to put such small detail so far from the eye that it can hardly be distinguished, but the window is beautiful both at long and short range, and has the quality so pleasant in decoration that has to be lived with, of always revealing more and more to the spectator the longer he looks into it. Besides, the architect provided galleries for the close inspection of the work, which only the paternal care of the cathedral authorities prevents one from using, though by the exercise of great pressure one may sometimes succeed in getting up into them.

A very large number of windows in English Parish churches would seem from the presence of the badge of the "sun in splendour" to date from the reign of Edward IV. These show little or no change in style or technique. The latter remains as delicate and beautiful as ever, though the former may possibly have been in some danger of becoming stereotyped, when, about the end of the XVth century the English worker fell a victim to foreign competition with the advent of the Fleming. The latter, with his better drawing and his greater skill in picture-making, seems, in spite of his coarser touch, to have hit the public taste, and to have wiped out the local school before ever the Reformation made an end of it. Whether or not the windows at Fairford, and at King's College, Cambridge, were wholly or only in part the work of Flemings, there is no doubt that Flemish workmen were employed upon them, and that the predominating influence in the design is Flemish. There is no need, however, to suppose that they were executed out of England. There were plenty of Flemings at work in this country at the time, and one is surprised that Mr. Day should repeat the absurd legend of their having been captured at sea, and the present church built to receive them. There is no evidence whatever in support of the story, which is not heard of in any account of the windows earlier than the XVIIth century, and it simply will not bear investigation. One would have thought that to a practical designer like Mr. Day it would have been evident that the glass was designed for the perpendicular windows it at present fills, and for no others.

It seems to have been an invariable rule with the early glass workers, and down even to the middle of the Perpendicular period, that though single figures might be large, narrative subjects should be kept relatively small. In this way each picture merely formed a detail in the general design which could, therefore, be planned solely with a view to architectural effect. It was a sound rule, and one which might well be recommended to modern designers, but it was too narrow for the new school of artists, who wanted pictures above all things. Thus, whereas in earlier work, even where a subject extended through several lights, it was composed of separate panels, each complete in itself, and usually with some frame of border or canopy-work to separate it from (or rather connect it with) the stonework; at Fairford, and more often in later work, one begins to find scenes extending from one light to another as if the mullion were not there. At Fairford and at King's College, Cambridge, this is done with great judgment, and one hardly resents it. The gain in pictorial impressiveness is, of course, considerable—one could hardly wish the great "Doom" window at Fairford other than it is; but nevertheless it is the first sign that the artist was beginning to forget the purpose and limitations of his art. It was the thin end of the wedge that was later to divorce the art from its architectural purpose and eventually to kill it. In the great windows in St. Gudule, at Brussels, the mullions are so utterly

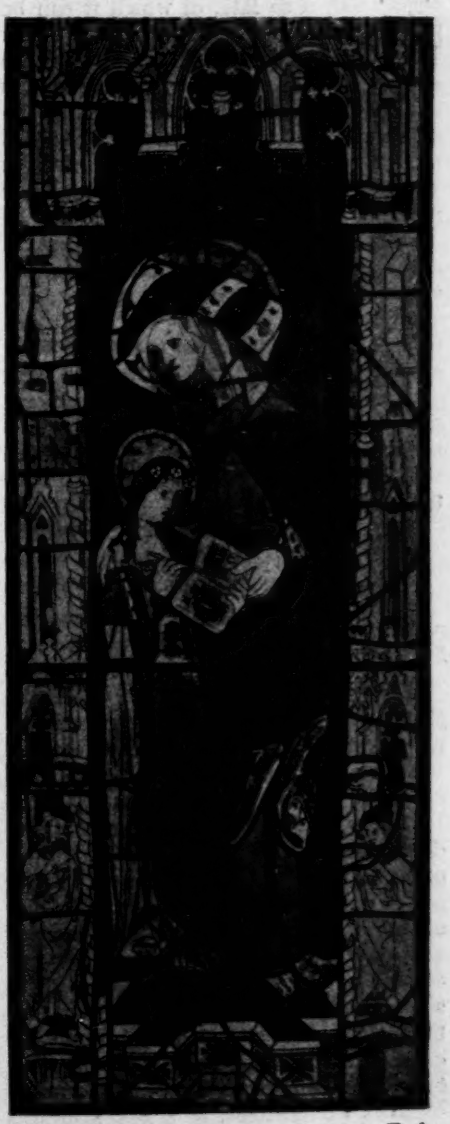


Fig. 4. From East Window, All Saints, York.

ignored in the design that the spectator has been known at first sight to mistake them for scaffolding erected in front of the glass. There could hardly be a stronger condemnation of the method. Another instance of the working of this spirit is seen in the way the artist

began to trust more and more to his painting and less to his work in glass and lead. He was entering upon the road that was to lead him at last to Sir Joshua Reynolds's "Virtues" at Oxford.

We cannot help regretting that Mr. Day has devoted so much space and attention to windows of this decadent period. The fact that they contain better drawing than is to be found in earlier work is really irrelevant, and should not be allowed to weigh against the fact that they sin against every canon of sound art. One does not go to old stained glass to learn drawing, which even in the best examples is hardly first-rate, but for beauty—for those qualities of design, of architectural fitness, of the right use of the material, and of sheer beauty of the material itself, which are precisely the qualities that are lacking in these later windows.

That they have other great qualities we do not deny. One has only to compare Bernard van Orley's work at St. Gudule with the modern imitation of it in the same church to see to what far lower depths art can fall; but the fact remains that there is little, if any, glass later than 1530, if so late, of which it can be said that it is thoroughly sound at heart. Even the work of William of Marseilles, we confess, leaves us cold, in spite of his extraordinary ingenuity in bending the stubborn material to his purpose of picture-making, and we find ourselves wishing that he had chosen some other material in which to express himself.

It may be, as Mr. Day says, that to deny to these works a high place in art is to write oneself down a bigot, but surely the first thing that one is entitled to ask of an artist is that his work should be founded on the rock of loyal observation of the limitations of his material; and if he fails in this, be he never so gifted, then—he that is least in the kingdom of sound art is greater than he.

NOTES.

Waste of Money on Competitions.

WE draw attention to an important letter on this subject under the head of "Correspondence," from Mr. Gibbs, of Sheffield. The proposals which he makes may or may not be practically feasible, but they at all events merit the best attention of the Profession and of the Institute of Architects. There is no doubt that the waste of time, and often of no little talent, in competition designs out of which only a very small proportion of those competing can expect to get any advantage, is becoming a very serious matter, and that some steps should be taken towards endeavouring to modify the accepted conditions of competition so as to render this method of obtaining designs less attractive to building Committees, and less injurious to architects. As it is, there are not a few instances in which competitions are advertised as a kind of pastime for the promoters, at the expense of the profession.

Employment, Wages, and Trade Disputes in 1909.

THE Board of Trade *Labour Gazette* contains an interesting survey of employment, wages, and trades disputes for the past year. Although the latter quarter of the year witnessed a slight decline in unemployment amongst the members of trade unions, the mean for the whole year was 7·7 per cent., compared with 7·8 in 1908. The mean percentage of unemployment in 1907 was but 3·7, and in 1906 3·6, so the years 1909 and 1908 were very unsatisfactory, and were without precedent in the eleven years from 1899. The net result of the changes in rates of wages for the year was a decrease of 69,212*l.* per week, compared with 61,683*l.* in 1908. The number of trade disputes commenced in 1909 was 409 compared with 399 in 1908, and 299,949 workpeople were affected, as compared with 295,907, but the duration of the disputes was far less serious and involved a loss of but 2,761,000 working days, as compared with 10,831,189 working days in 1908. The building trade, as usual, showed a good example in this respect, only fourteen disputes having occurred, involving 1,567 persons and lasting 19,000 working days, as compared with nineteen disputes, involving 2,892 workpeople, and causing a loss of 73,919 working days in 1908. This is the only satisfactory feature to be noted in connexion with this depressed industry; its members bear adversity well. Less carpenters and plumbers were unemployed in certain districts in December last than in the previous December, but the condition of the trade generally is very depressed, and, whatever may be the merits of the Budget, it cannot be denied that so far it has exerted a very bad influence on the trade.

The Rome Exhibition, 1911.

AT a meeting of the Committee for the provincial section it has been decided to represent each province by a separate pavilion in its own characteristic style and surrounded with a garden—for instance, Tuscany by a palace of the quattrocento, Liguria by a Genoese mansion, and Sicily by a Norman-Arabian house. Two prizes of 600*l.*, with a gold medal, and 400*l.*, with a silver medal, will be awarded in each of two competitions, national and international, for the laying out and treatment of the gardens in the exhibition.

Architectural Regulations in Berlin.

THESE regulations provide (1) against damaging æsthetically streets or squares of historic or artistic importance by the erection of new buildings or the alteration of existing ones; (2) against injury to historic or artistic buildings of importance by the erection in their neighbourhood of unsightly buildings; and (3) against the exhibition of signs, inscriptions, and show-cases which have previously not been sanctioned as suitable. The new statute of January 1, 1910, contains a list of these streets, squares, and buildings, which henceforth are to be considered as being under protection. The list includes not only localities hallowed by age, but new streets, squares, and buildings, which give Berlin its character. These appear to have been selected rather arbitrarily, as many names are missing which one would have expected to find in the list. The wording of the various paragraphs leaves also much to be desired, for the protection of a street view as a whole does not necessarily protect the single buildings, which may be æsthetically ruined by alterations without injuring the effect produced by the street. Before granting or withholding permission to build, the magistrate and expert Council must be consulted. The Council consists of (*a*) a member of the Academy of Arts; (*b*) a member of the Academy of Building; (*c*) a member of the Berlin Architectural Association; (*d*) a member of the Society of Berlin Architects; (*e*) the City Architect; (*f*) two members of the Town Council. The first four members are appointed by their respective bodies for six years, and must be resident in Berlin or the suburbs. The last two members hold the appointment during the current year. A point in which the statute fails to be satisfactory is this: that it refers only to streets and squares used for carriage and foot traffic. The waterways and railroads (the latter of great importance in Berlin) are ignored, although building atrocities are far more noticeable from a railway carriage than from a roadway.

Guild of Architects Assistants.

THE constitution of this Guild, which is now settled, includes the formation of a central body in London, and branches, governed by the Executive Council in London, with Branch Committees. It is proposed to hold in London an Annual Conference of Delegates from the Central body and the Branches, including also representatives from Architectural Societies. The Conference is to advise the Executive Council, but to have no executive power in itself. Annual general meetings are to be held in different centres each year; at which meeting officers for the ensuing year will be elected. The scheme of the Guild, the details of which are before us, seems to be very well considered, and the scheme ought to be a success, and will, we should think, be a great benefit to the large army of architects' assistants in giving them the union which is proverbially strength. Branches have already been started at Manchester and Cardiff. The Hon. Secretaries are—*London*, Mr. E. J. Dixon, A.R.I.B.A., (137, Church-street, Edgware-road, W.); *Manchester*, Mr. P. Caminesky, A.R.I.B.A. (24, Brunswick-street, Manchester); *Cardiff*, Mr. S. Bowen Williams, M.S.A. (110, Miskin-street, Cardiff).

Dampness of New Buildings.

MOST people recognise the fact that newly-built houses are more or less damp according to circumstances, but the knowledge does not appear to have reduced in any way the general attractiveness of such structures for the average householder, nor has it suggested investigation to the authorities who watch over the welfare of the public in this country. The subject is evidently regarded in a more serious way elsewhere, for we learn that for several years past Dr. Calvi, the chemical expert to the City of Turin, has been in the habit of measuring the humidity of new houses destined to the purpose of habitation. His method is to take, from various points in the outer walls, samples of

mortar which are pulverised and dried in a specially prepared stove hermetically closed against the atmosphere and provided with apparatus for the supply of perfectly dry air intended to absorb moisture from the pulverised mortar. We are told that houses are considered to be habitable when, from the beginning of June to the end of September, the proportion of water does not exceed 3 per cent., and when, from October to the end of May, the proportion is not more than 2 per cent. In the case of buildings only occupied during the day it is stated that the proportion of water may be as high as 4 per cent. The study is of considerable interest from the theoretical standpoint, but we imagine that builders are not likely to favour any practical application of the results in the way of local by-laws.

The Alloys Research Committee.

IN the ninth Report to the Alloys Research Committee of the Institution of Mechanical Engineers Dr. Rosenhain and Mr. Lantsberry, of the National Physical Laboratory, discuss in an exhaustive manner the results of their investigations into the influence of a third metal on the alloys of copper and aluminium. It was at first intended that manganese, nickel, and zinc should be so considered, but the study of a group of ternary alloys was found to be such a lengthy matter that the publication of the Report would have been unduly delayed if the original programme had been followed. Therefore the present Report deals only with the properties of some of the more important alloys resulting from the addition of manganese to copper and aluminium. Notwithstanding the fact that the Report runs to nearly two hundred pages, the research conducted so far does not deal exhaustively with this group of alloys—a fact pointing clearly to the appearance of several more documents of the same character as those which have been issued during the past twenty years.

Reinforced Macadam in France.

A SYSTEM of road construction introduced to the notice of the Road Congress of 1908 by M. Guiet, an official connected with the Department of La Vendée, consists of a concrete foundation slab covered by a layer of cement mortar in which are embedded longitudinal bars and transverse wires constituting reinforcement, and broken stone forming the road surface. The first examples of the system were installed at La Roche-sur-Yon, in La Vendée and at Gennevilliers, near Paris. Owing to the satisfactory results there obtained, further experiments have been made in La Vendée, some with macadam formed on the site, and others with macadam slabs manufactured in advance. The advantages claimed for this method of road construction, and supported by practical experience, are that the homogeneity of the paving insures uniform wear and prevents its disaggregation by the pneumatic tyres of motor vehicles, and that, without being slippery like asphalt, the surface is remarkably free from mud and dust. It is stated that this type of reinforced macadam costs about 7s. per square yard and that, in virtue of its greater durability, the ultimate cost will not be more than that of ordinary macadam. The system, together with the method of reinforced road construction described in our issue of January 15 last, constitute interesting examples of the manner in which the principle of reinforcement is being extended to various departments of work.

Federal Capital, Australia.

THE Commonwealth and State Parliaments have passed an Act which ordains that the new Federal Capital shall be built at Yass-Canberra, on the River Molonglo, in New South Wales. It is proposed to invite competitive plans from architects of all countries for laying out the city and building public offices, and to frame a set of regulations to govern the erection of private buildings in dependence upon the accepted plans and designs. The general scheme embraces the formation of a railway 170 miles in length to Jervis Bay.

A State Park, U.S.A.

MRS. HARRIMAN has given 10,000 acres in Orange County for the purposes of a State park, and has offered 200,000*l.* for the acquisition of the land lying between the park and Hudson River. Sixteen other persons have notified their willingness to contribute jointly a sum of 325,000*l.* for preserving from threatened quarrying operations the ridge of basaltic rocks, known as the Palisades, on the west bank of the Hudson, and thereby facilitating the contemplated construction of a wide boulevard by the riverside, and developing that reach of the scenery as a place of public resort.

The Japanese Exhibition.

WE have received a circular from Mr. Searles-Wood, the Chairman of the Public Health and Sanitation Section of the approaching Japan-British Exhibition, calling attention to the importance of having a good representation of English sanitary work at the Exhibition. England, as he says, is the leading country in all matters connected with hygiene, and it appears that the Japanese are now very much alive to the importance of good sanitary appliances, and are giving a great deal of attention to English methods and manufactures of this class. It is therefore desirable that this exhibition should represent English sanitary work at its best.

THE SURVEYORS' INSTITUTION:

HOUSING AND TOWN PLANNING.

AN ordinary general meeting of the Surveyors' Institution was held at the Institution, No. 12, Great George-street, S.W., on Monday, when the adjourned discussion on Mr. Davidge's paper, "Town Planning Systems," and Mr. John Willmot's paper on "The Housing, Town Planning, etc., Act, 1909," was continued.

The chair was occupied by Mr. Alex. Rose Stenning, President.

The Hon. Secretary, Mr. Percivall Currey, announced some donations to the library and the library fund, and a vote of thanks was accorded to the donors.

The Chairman then explained that the discussion on the papers was to have been resumed by Mr. William Woodward, but Mr. Woodward was too unwell to be present. He had, however, sent some notes on the subject, and these Mr. Currey would read.

Mr. Woodward said that there would be little doubt that all the authors who had devoted time and trouble to the question of laying out cities had been far too ambitious in their schemes, at all events for this slow-going country of ours; and particularly the writers had suggested street improvements which would involve such enormous dislocation of business and such great cost that they, being entirely impracticable, had passed into the limbo of beautiful ideals. He had been perhaps one of the greatest sinners in this respect, but he had, after a quarter of a century's experience, seen the error of his ways. Many of the members were now living who had witnessed the initiation and completion of the greater part of improvements in London which had occurred during practically two centuries, because very little was done in the XVIIIth century. Regent's Park, Regent-street, Cranbourn-street, and Garrick-street were perhaps just outside the ken of the oldest inhabitant, but the Thames-embankment, Charing Cross-road, Shaftesbury-avenue, Gray's Inn-road, Queen Victoria-street, Tower Bridge, and other Corporation works, and, lastly, Aldwych and Kingsway, were all improvements which the older members of the Institution had seen carried into execution. These had been carried out by the respective local authorities; and then there was the fine improvement—the opening of the Mall to Charing Cross, with its Grand Coronation-avenue, terminated by the monument to Queen Victoria, which we hoped soon to see completed. That some of these improvements were capable of further improvement they all knew, but it was useless now to cry over spilt milk, except as a warning not to spill it again in the same thoughtless way. He proposed to suggest one or two improvements which he thought were within the range of practical consummation under the Town Planning Act. Just think for a moment of Paris, and remember how this question of street improvement had laid hold of its administrators. An expenditure of 36,000,000*l.* sterling had this month been sanctioned practically to complete the grand schemes of the late Baron Haussmann. Would our administrators—Conservative or Liberal—vote a tenth of that sum to carry out street improvements, or items of embellishment in London? Our policy was a short-sighted one; a fine city attracted to it the world, and a good return for the cost was made in the money which was annually expended by thousands of visitors, money which spreads itself through the whole community. He thought that few of them were completely satisfied by the present appearance of the new opening to the Mall from Charing Cross. He had expressed his personal view that in lieu of the three arches there should have been only one grand triumphal arch through which a clear vista to the Victoria Memorial could have been obtained and all the beauties of the avenue opened up; but that could not now be, and they could therefore devote themselves to obtaining adequate appreciation of Sir Aston Webb's fine architectural work. What administration but a London one, having obtained by national subscriptions such an improvement, would have permitted it to be half hidden up and the whole effect spoilt because they would not spend the necessary money in acquiring the sites of the houses to the west, in Cockspur-street, which now close in the new entrance, and in acquiring the site of Drummond's Bank, which was the great blot upon every attempt to improve this part of Charing Cross. This bank, of no architectural pretentions, should at once be pulled down, together with the houses adjoining it in Charing Cross, as far as the old Admiralty building; Charing Cross could then be widened to 80 or 90 ft.; this bottle-neck end of Charing Cross done away with;

a better view obtained up to the Houses of Parliament; and a really noble improvement effected. He should not die contented unless he saw Trafalgar-square, this gloomy asphalted waste with its two squirts, made worthy of its description as the finest site in Europe. He thought it really within the bounds of reason to hope for something not only "attempted," but "done," to beautify this fine square. Was not this a grand opportunity for one of our millionaires to hand down his name to posterity in a glorious work like this? The plan, which he exhibited, showed the proposed laying-out of the square, and the elevation showed one side as he suggested; both sides, east and west, should be altered. The present raking sides; the steps at the north-east and north-west angles and the fountains were eyesores, whilst the statues were out of place. The main idea which he and Mr. E. Staley—who took a deep interest in this subject—had was to make Trafalgar-square our naval monumental centre, forming in stone and bronze a complete naval history of Great Britain. Thus on each of the four great piers—north, south, east, and west—would be placed sculptural groups representing respectively the naval victories of the XVIth, XVIIth, and XVIIIth centuries, Trafalgar being the culminating point in 1805. The present Nelson Column would remain untouched. The larger piers on the east and west walls would be adorned by minor groups, and the smaller piers by bronze electric lamp standards. The intervening spaces would be filled with wrought-iron railings with gilded spear-heads. The two present fountains would be removed and new ones, of better plan, substituted. In the centre of the fountain to the east would be placed a bronze group of Neptune and sea gods (emblematic of the four oceans) and in that to the west a bronze group of Britannia and mermaids (emblematic of the four members of the United Kingdom). The entrance to the tube station at the south-east part of the square he would cover, and render sightly by a circular domed temple of pierced wrought-iron work, and a corresponding temple should be placed at the south-west part of the square. Under the dome of the latter should be placed a drinking fountain; one of the domes should be terminated by a model in iron of the *Great Harry*, and the other by one of the *Victory*. The awkward staircases at the north-east and north-west angles of the square and terrace should be removed, the angles squared, and the terrace balustrade carried across. In the centre of the north front should be formed a grand staircase equal in length to the portico of the National Gallery. Upon the two main piers of this staircase should be placed allegorical figures standing on gilded globes, one with palms, representing "Peace," the other with laurels representing "Honour." On the side walls of this staircase should be placed bronze bas-reliefs, similar to those on the Nelson Column, representing individual gallantries such as John Davis forcing the North-West Passage; Drake, first navigator, rounding the Horn; the famous game of Drake at Plymouth; Sir Richard Grenville and "The Revenge"; Raleigh's offer to King James; Death of Blake; Lord Sandwich blown up with his flag-ship; Benbow's bravery; Admiral Byng's famous record; the exploit of the *Monmouth*, etc. Along the east, west, and north walls he would place marble seats. The whole of the present asphalt paving should be taken up, and fine-axed granite paving—grey and red—designed to suit the square, substituted. Shrubs in tubs should be dotted about the square, and water plants placed in the fountains. Thus he would make Trafalgar-square the centre of attraction in London, so adorn it as to become an incentive to naval patriotism, and constitute it a tribute to our never to-be-forgotten naval heroes. The statues at present in the square were to the memory of military heroes. They should be removed to the Horse Guards Parade, which might, in its turn, become the military monumental centre. The standard measures now on the north side of the square should be removed to the Board of Trade. The new St. Paul's Bridge, due to the public spirit and munificence of the Corporation of the City of London, afforded a fine opportunity for planning and for architectural and engineering skill. He suggested that designs for the work should be invited in open competition from Englishmen only. Our public parks and squares constituted a wise and admirable feature of our Metropolis; but we did not avail ourselves of the opportunities afforded to adequately open them up. In a paper upon London improvements which he had read before the Institution he suggested the formation of new thoroughfares to open up our parks. For instance (1) continuation of the Haymarket, southwards, by a new street into the Mall—St. James's Park; (2) continuation of Pall Mall, westwards, by a new street into the Green Park; (3) new street from Bow-road, at Coborn-street, into Victoria Park. And no doubt other practical openings up of our parks and squares could be suggested. Mr. Davidge had made an excellent suggestion for the connexion of our parks by a broad tree-planted avenue with green grass and gardens at frequent intervals. His idea would, if carried out, give, as he says, an altogether different character to London. As to the Housing, Town Planning, etc., Act, 1909, it seemed perfectly hopeless to get an Act of Parliament drafted so that those who had to administer it should easily interpret its clauses. The three points upon which he fell foul of the Act were (1) its bureaucratic provisions; (2) its far too limited powers of appeal from the decisions of the bureau of the Local Government Board; (3) its powers of mischief in dealing with open spaces. But, as with all other Acts of Parliament, it was not so much what was said, nor in the way in which it was said, but in the character and ability of the administrators.

Mr. Burge, Civil Engineer, said he had spent a great many years in Australia and had had something to do with the new capital proposed to be built in Australia. The question of the position of the new capital in the colony of New South Wales had been under consideration for probably nine or ten years, but now that had been finally settled within the last month or two, and there was an unrivalled chance for a new town planning. Except in the case of the City of Washington he did not think there had been a case for centuries where a new town had had to be planned on virgin soil, at all events on anything like the magnitude of the Australian proposal. The authorities expected the city to become a large one, and they proposed a water supply for 600,000 inhabitants, though he did not think the city would be anything like that size. The existing cities of Melbourne and Sydney would, in his opinion, retain the commerce of the country, and the new capital would be merely the official one—something like Ottawa in Canada. He understood that competition designs were to be asked for the new city from all parts of the world, though he did not think that was officially settled. There was great room for improvement upon the planning of Australian towns, and though he had seen cities in many parts of the world, he did not know of any cities that were more stupid, ugly, or inefficiently planned than those in Australia. They were bare chess-board plans, without originality and with the side streets the same width as the main ones, which was a great mistake. He agreed with Mr. Unwin when he said that in the matter of town planning the architect ought to be supreme, but at the same time the engineer and the surveyor ought to have some say in the matter. The Consulting Board which had been considering the question of the site of the new Australian capital, and which would have something to do with the competition, consisted of four gentlemen, the civil engineer being excluded. There was a politician, then one of the ablest architects of New South Wales, *i.e.*, Mr. Vernon—the right man in the right place; the third member was a surveyor—and a surveyor in Australia was not what a surveyor was in England, for he had merely to do with the measurement of land and not with the laying out of towns, water supply, sewage works, or matters of that sort; and the fourth gentleman was a Royal Engineer. As to the site chosen, there was a difference of 170 ft. between the highest and the lowest points. A small stream ran through the site, and it was proposed to dam up the water and provide a large ornamental water in the centre of the city. That would no doubt be a very attractive feature, especially in a climate like the climate there, but it left on the area on each side a comparatively small space, and there was the great difference of level, which would cause some streets to be very steep and quite unfit for tramway work—for one looked for a good deal of tramway traffic in a city of that magnitude. Therefore he thought competitors would have to adopt a picturesque plan, and let the streets follow along contour lines as much as possible, and so produce something very different from the usual chessboard plan of Australian streets.

Mr. Arthur Vernon, Past-President, said that while it was easy to look at the various examples of town planning and to find fault with them all, it was difficult for any one to lay down empirical rules which should govern the laying out of a new town. The person who had to devise the laying out of a new town had to consider the basic rules for successful laying out. Three conditions were necessary for a successful solution of the problem. First, the climate had to be studied; secondly, the customs and habits of the people; and third, and most important, one must be thoroughly conversant with, and adapt their arrangements to, the disposition of the land, the water, the heights of mountains or hills and valleys and any peculiarities of site; in other words, must give a due consideration to the physical features of the site on which it is proposed to place the town. Of the cities of the world, some were highly successful and some very unsuccessful. He could not help thinking that the site ought to be chosen which would suit the city, and no doubt this had been done in the case of the new Australian capital, which he hoped would be a great success. If it did not surpass Washington, which had been called a city of magnificent distances, it would be unfortunate. Washington was a city of unfulfilled promise. Montreal was one of the best cities he had seen, and it had three features which made it a delightful place. It had the glorious St. Lawrence, over which Mr. Brassey had thrown that wonderful bridge; it extended gradually up the slope towards the mountain which gave the name to the city to the beautiful place full of wide open spaces forming the city, and at the back rose the Mount Real, which furnished the pleasure-ground for the living and the cemetery for the dead. It was a most picturesque and well-arranged city. He knew of no city so beautiful on the perfect chessboard system as Denver, at the foot of the Rockies, and based on a knowledge of the requirements of the American people. The city, though a modern one, was fairly full already. There were tramways everywhere—four or five tracks along the roads; and nothing seemed crowded, and there was plenty of width. Except for trees, the absence of a river and sufficient hilly ground to give diversity, it was a most beautiful city. No city could satisfy all tastes which had not plenty of variety and which did not give but few horizontal squares. The great danger of so many of our cities was the crossings, and he could not see why roads and arteries should not be made to dip under and over as was done elsewhere, and as in the case of railways, which,

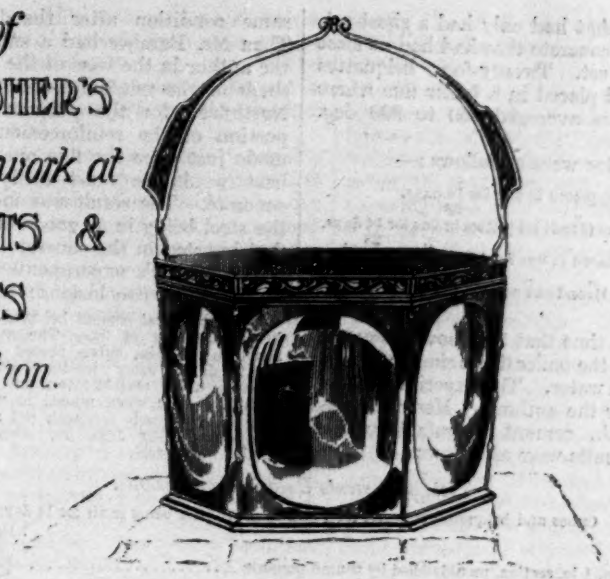
generally speaking, were safe to the public. He had laid out a few small towns, and he had always found himself restricted by by-laws. He did not think our small streets need be 36 ft. wide; they could be narrower with advantage and economy, though, of course, it depended on the surroundings. In some cases 40 ft. were required for the width, which was absurd, and it all helped to increase the rents. As to width of streets in large cities, he might mention that the city of Winnipeg had laid out its great street called Main-street at a width of two chains, but the city had grown so fast that they found the width inadequate. Michigan-av. in Chicago was a wonderful road, and very fine, but it suffered from its length of straight street—a length of five miles tended to be wearisome. It was better for a street to curve gently, and that point could be seen by comparing High-street, Oxford, and the Rue de Rivoli, Paris. He thought that the new Act, which would be of great value to the country, ought to be carried out with much discretion, or else there would have to be modifications which would give opportunity for indulging in artistic effects. He did not think the small authorities in England were best adapted to decide these points, and he did not like the tendency of legislation to give to the Local Government Board power to deal with their own errors or mistakes. He did not believe that the rectangular or chessboard plan for a city could ever be quite satisfactory; it might be applied to part of a town, but Heaven help artistic people who had to live in such a town! The picturesque plan was one which depended on one's own sweet will, and the success of that depended on the owner of the will.

Mr. H. V. Lanchester said we did not realise that satisfactory town planning was by no means so easily achieved as a great many people imagined. Germany had been dealing with the matter for thirty years, and her municipal officers, who, as a body, were superior to ours, had found out where they had made mistakes, and these were to be rectified in the future, which showed that in Germany they had not reached finality. In America the matter had been taken up in a sensible way, and *ad hoc* committees, elected from bodies like the Chamber of Commerce, etc., considered proposals, and all classes of citizens seemed to take an interest in what was proposed. He agreed that elected authorities, at all events in this country, were not the best qualified to deal with questions of this kind, and it was essential that no new scheme should be adopted unless it was the outcome of the deliberations of men of knowledge and experience in regard to town planning. Mr. Lanchester then showed a number of lantern slides, and quoted from his article in the *Builder* of October 3, 1908, on Park Systems for Great Cities. He referred, in conclusion, to a model he had brought with him, showing a method of getting over the difficulty of different levels in bridge approaches, enabling one to drop from a high level of one side of a river to a low level on the other.

Mr. Speaight said that one's appreciation of the various papers read on town planning, etc., was spoilt because of the impossible proposals which they generally contained. For instance, the proposal made by Mr. Davidge to connect up the London parks would involve an expenditure of many millions, and he suggested that members of the Institution should be forbidden by the President to propose a public improvement unless accompanied by a definite statement of cost and how to obtain the money. Schemes which were not practical were put forward which led the man in the street to regard even practical proposals as the dreams of artists. Mr. Speaight then showed several lantern slides of the Marble Arch improvement.

The discussion was then adjourned for a fortnight, and the proceedings terminated.

Some of MR FISHER'S *Silver-work at the* ARTS & CRAFTS *Exhibition.*



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SILVER-WORK AT THE ARTS AND CRAFTS EXHIBITION.

THESE are sketches of three of the excellent examples of silver-work by Mr. Alexander Fisher, in Case No. 579 in the Hall at the Arts and Crafts Exhibition. They are sketched by permission of the artist.

No. I. is a silver cake-basket; No. II. is a silver dish with an enamel design; and No. III. a salt-cellar of silver and enamel.

THE CONCRETE INSTITUTE.

AT the third ordinary general meeting of the Concrete Institute on Thursday, the 20th inst., at the United Service Institution (Mr. W. T. Hatch, Engineer-in-Chief of the Metropolitan Asylums Board, in the chair), a paper on "Reinforced Concrete Chimney Construction" was read by Mr. Ernest R. Matthews, Borough Engineer of Bridlington.

He commenced by remarking that during the past seven years one firm alone—the Weber Company, of Chicago—had erected nearly a thousand such chimneys in America, under the direction of some of the most able engineers and architects in that continent. The subject-matter of his paper was divided into—(*a*) The advantages of using reinforced concrete for the construction of chimneys. (*b*) The erection of reinforced concrete chimneys in Great Britain. (*c*) A tabulated statement giving particulars of a number of these chimneys constructed in the United States. (*d*) The methods of calculating the stresses and strains in such chimneys, and reason for the recent failure of a shaft in the United States. (*e*) The effect of excessive heat upon concrete and reinforcement. (*f*) General notes with respect to reinforced concrete chimneys.

The advantages of using reinforced concrete in chimney construction were stated to be (*a*) *Economy in cost.*—It had been found in America that reinforced concrete chimneys could be built by a well-organised firm at less than one-half the cost of a brick shaft. (*b*) *Saving of space.*—In a shaft 300 ft. in height, for example, the brickwork at the base, according to the building regulations of the English cities and boroughs, would be about 4 ft. 10 in., whereas the thickness of the walls at the base of a reinforced concrete chimney would probably be as follows: outer wall 9 in.; inner wall, 5 in.; with a space of 4 in. between the two walls. (*c*) *Less weight than brick shaft.*—A matter of the greatest importance where a treacherous soil had to be built upon. (*d*) *Stability.*—Reinforced concrete chimneys had been erected in the United States for some years past, and the author knew of only one failure. (*e*) *Freedom from repairs.*—Once erected, reinforced concrete chimney shafts required practically no repairs. (*f*) *Rapidity of execution of work.*—This was well known; a reinforced concrete chimney could be erected in half the time that it took to build a brick shaft.

Particulars were then given as to typical examples of reinforced concrete chimneys in Great Britain and in America.

With regard to the recent failure of a chimney in the United States, it appeared that, while the thickness of concrete was ample, there was not nearly enough steel to ensure safety, and this deficiency in steel greatly increased the pressure on the concrete by throwing the line of zero stress away from the centre of the chimney, and thus leaving a very small proportion of the section in compression. . . . The failure of this chimney could not be said to cast any reflection upon the use of properly designed reinforced concrete for such structures. In regard to the effect of excessive heat upon concrete and steel reinforcement, in order to obtain some reliable data, the author had carried out two series of tests, one dealing

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with concrete that had only had a short set, the other with concrete that had had at least two months' set. Twenty-four briquettes were made and placed in a boiler flue where the temperature averaged 850 to 900 deg. Fahr.

The briquettes were as follows :—

3 neat briquettes, placed in flue for 14 days.
3 " " " 28 "
3 sand and cement (3 to 1) briquettes in flue for 14 days.
3 " " " 28 "
3 2½-in. cubes, placed in flue for 14 days.
3 2½ " " " 28 "
3 2½ " (3 to 1) sand and cement, in flue for 14 days.
3 2½ " " " 28 "

At the same time that the above briquettes were placed in the boiler flue a similar number were placed in water. The experiments were carried out for the author by Messrs. G. and T. Earle, Ltd., cement manufacturers, of Hull. The results were as follows :—

same condition after the test as before. Then Mr. Bamber had a small hole cut for the author in the base of the inner and outer shells of the reinforced-concrete chimney at Northfleet, for the purpose of exposing a portion of the reinforcement. These were made just over the flue opening, where the heat would be most likely to affect the concrete. The result was most satisfactory, the steel being in as good condition as when first inserted in the concrete.

The author's experiments had led him to the following conclusions :—

"(1) That neat cement behaves better under great heat than out of it. The average compressive strength of 2½-in. cubes placed in flue for twenty-eight days, after having remained in air for fourteen days, was 52·6 tons on the cube compared with 33·6 tons when placed in water for a similar period; the tensile strength per square inch of the briquettes being 1,008 lb., compared with 850 lb. in the water test.

Tests of Cements Used in Experiments.

Cubes and briquettes in water for 7 and 28 days, after being in air for 14 days.

	7 Days.	28 Days.
	lb.	lb.
Neat tensile strain, 1-in. section, moulds filled by thumb pressure	620	740
Neat tensile strain, 1-in. section, moulds filled by brass rammer	720	850
Sand tensile strain, 1-in. section, moulds filled by brass rammer	310	460
	Tons.	Tons.
Neat compression strain, 2½-in. cube, moulds filled by brass rammer	26·5	33·6
Sand compression strain, 2½-in. section, moulds filled by Klebb hammer	11·5	14·1

	Tons.	Average.
3 neat cubes in air, 14 days, in flue 14 days	48·2, 50·0, 50·0	49·4 tons on 2½-in. cube.
3 " " 14 days, " 28 days	49·6, 53·6, 54·7	52·6 tons on 2½-in. cube.
3 sand " " 14 days, " 14 days	12·4, 14·0, 14·6	13·3 tons on 2½-in. cube.
3 " " " 14 days, " 28 days	13·6, 13·8, 14·7	14·0 tons on 2½-in. cube.
	lb.	
3 neat briquettes, in air 14 days, in flue 14 days	880, 890, 900	890 lb. on 1-in. section.
3 " " 14 days, " 28 days	955, 990, 1,080	1,008 lb. on 1-in. section.
3 sand briquettes, " 14 days, " 14 days	110, 110, 120	113 lb. on 1-in. section.
3 " " 14 days, " 28 days	85, 100, 130	105 lb. on 1-in. section.

Temperature, 850°-900° Fahr.

Other series of tests were given, with the same object.

The author had determined to obtain some information regarding the condition of the concrete and reinforcement in an existing reinforced concrete chimney, and he was greatly indebted to Mr. H. K. G. Bamber, of the Associated Portland Cement Manufacturers, who supplied him with some most useful information on this subject, and informed him that in order to ascertain if concrete deteriorated through the effects of heat he inspected on several occasions the face of the concrete shell inside the reinforced concrete chimney at the works of his firm at Northfleet, and he failed to observe any signs of deterioration. Not contenting himself with this, he subjected the ash in this chimney, on various dates, to an analysis, and compared this with an analysis of the ash taken from the base of a brick Custodis shaft, also at his firm's works at Northfleet. The comparison was most interesting; there was very little difference in the percentage of insoluble residue present, which residue would, of course, include any portions of sand that might, from deterioration, be coming away from the inside of the inner shell of the concrete chimney. The result of Mr. Bamber's analyses was set forth in a tabular form.

Again, Messrs. G. and T. Earle informed the author that in order to ascertain the effect of heat upon concrete they placed a block of concrete (which had had several months' set) in one of their boiler flues for some months, the temperature in the flue being about 700 deg. Fahr. The block came out quite unaffected.

As to the effect of high temperatures upon steel reinforcement, the reinforcement in the blocks which the author had previously referred to was none the worse for being placed in a temperature of 1,250 deg. Fahr. or twenty-one days; it was in precisely the

(2) That concrete (three parts standard sand to one part Portland cement), if not well set, behaves very badly under heat. The average tensile strength of briquettes 1-in. section (3 to 1) placed in flue for twenty-eight days, after being in air for fourteen days, was 105 lb., compared with 310 lb. at seven days, and 460 lb. at twenty-eight days in water.

(3) That if the concrete has had at least a two-months' set before heat is applied a temperature of 900 deg. Fahr. will not affect it in the least. This might be taken as the safe temperature in reinforced concrete chimneys.

(4) That the 3 to 1 specimens in these tests giving such poor results point to the necessity of having no voids whatever in any concrete work, it being well known that 3 to 1 briquettes made of standard sand contain a considerable quantity of air spaces.

(5) That only allowing the specimens fourteen days before subjecting them to the heat is far too short a period in actual work. The greatest advantage is obtained by letting the heat get at the concrete after the longest time has been given for the cement to set.

(6) Concrete mixed with 10 per cent. of water (which should be the maximum in work of this class) would contain only about 1 per cent. of free water after a two-months' set. Heat should not be applied to concrete until the latter has had a two-months' set; a longer set, say three months, would be preferable."

In the course of the discussion which followed, Mr. Dunn, who spoke in general support of the paper, said that the lesser weight of a concrete chimney was not entirely an advantage, as the greater weight of the brick chimney operated in favour of resistance to wind and of general stability. He was of opinion that round bars were better than T-bars for adhesion. In regard to the saving of time claimed for ferro-concrete chimneys, he would suggest that it was possible to build too fast. Another speaker said that twenty-eight days was much too short a time for testing concrete for resistance to heat; in his firm they tested cubes of the concrete for fifteen months in high temperatures. Concrete mixed too dry did not make a good bond with the steel. Cracking of the concrete might, he thought, be provided against by proper distribution of horizontal re-inforcement, and also by the use of deformed bars. He was of opinion that the lining should be built concurrently with the outer wall of the chimney, and should be carried to the top, instead of being stopped, as was usual, at a certain height. Among other suggestions made were, that it must be remembered that in tests for resistance to heat the heat was generally applied on all sides of the concrete; in the actual chimney it was only applied on one side—a much more severe test. It was recommended also to keep the chimney wall as thin as possible; a thin wall and plenty of re-inforcement stood better than a thicker wall with proportionately less re-inforcement. One speaker objected to the recommendation of deformed bars on the ground that they actually promoted cracking; the concrete contracted, the steel bar did not, and hence prevented the homogeneous contraction of the concrete. In regard to the advantage of the shorter time occupied in constructing a concrete chimney it was pointed out that the necessity of waiting two or three months before the chimney was ready for use practically did away with the gain of time as against a brick chimney.

THE BLACKFRIARS SUBWAYS.

Owing to the increased risks suggested by the recently completed extension of the County Council tramway over Blackfriars Bridge the often discussed subway scheme was finally adopted last year by the City Corporation, and, as announced in our columns at the time, the new subway was opened to the public before the end of last year.

The main subway, 390 ft. long, extends between the north-west abutment of Blackfriars Bridge and the corner of Queen Victoria-street, and the cross subway, about 100 ft. long, connects the west side of New Bridge-street with the foot pavement in front of the District Railway station, both subways being 10 ft. wide by 8 ft. high inside.

Two general problems were presented for solution in the execution of the work—one the avoidance of interruption to street traffic, and the other the diversion of gas and water mains, electric cables, and other conduits.

The first difficulty was overcome by completing the work in sections, partly in open hoardings and partly by cuttings made and covered at night by baulks of timber over which traffic could pass during the conduct of work beneath.

Chief among difficulties of the second class was the diversion of the County Council subway for pipes and cables. This subway, 9 ft. wide by 7 ft. high inside, is approximately at the same level as the new passenger subways, and intercepted the line of the latter at right angles near the District Railway station, and obliquely at the west side of the Blackfriars Bridge approach.

In each case the pipe subway had to be siphoned under the passenger subways, the work involving the construction of siphons for one 36-in high-pressure gas main, one 6-in. hydraulic water main, one high-tension electric cable, and nearly 100 telegraph and telephone cables, most of these containing from 800 to 1,600 individual wires.

Near the railway station the pipe subway was underpinned and the siphon walls built under the original walls, then after all conduits had been diverted the old walls were cut away, the new walls of the cross subway were built up, and the floor, constituting the roof of the siphon, was formed by steel girders and concrete.

Near the north-west abutment of the bridge the roof of the railway tunnel forms the floor of the passenger subways, and there was no room for a siphon at the point of intersection. Consequently the pipe subway was diverted northwards at its existing level, then carried beneath the passenger subway alongside the railway tunnel and brought up again to rejoin the further portion of the same subway.

Among other obstructions encountered in this section of the work were two groups of post-office telegraph and telephone cables, one containing twenty-five and the other eighty cables, and both running into a junction-chamber just outside the new passenger subway walls. This chamber had to be underpinned, the floor lowered, and headings driven for diversion of the cables beneath the new subway. Near the same place the low-level sewer was ventilated by a shaft, which had to be taken down and filled in, while in its place the contractors had to build a new shaft 33 ft. deep with a side entrance to the sewer.

During the construction of the cross subway the sewer carrying the waters of the former River Fleet was encountered. This sewer, which is used as a storm-water overflow, is 12 ft. wide by 16 ft. deep, and, being in connexion with the Thames under Blackfriars Bridge, it is frequently surcharged at high tide. In order to construct the new subway it was found necessary to cut away the brick arched roof of the Fleet sewer and to raise the side walls to carry the subway floor without reducing the effective area of the sewer.

The walls of the passenger subways are 3 ft. thick, built of Fletton brick in cement mortar and lined inside with white glazed tiles. The floor surface is of asphalt, and the roof of steel troughing filled with concrete.

The subways are reached by two flights of stairs at each entrance, giving the minimum height of 7 ft. 7 in. Illumination is provided by 40 candle-power electric lamps 15 ft. apart and arranged on two circuits connected with independent supplies, so that if one supply were to fail every alternate lamp would remain alight.

It is satisfactory to note that owing to the precautions taken by the contractors, no accidents occurred; no damage was caused to any of the pipes or cables, although about a mile of pipes and some 4,000 miles of wires were necessary for diversions, and no inconvenience was suffered by telephone subscribers and consumers of gas, water, and electricity.

The works were designed by Mr. Basil Mott, and executed by Messrs. Perry & Co. (Bow), Mr. David Anderson acting as resident engineer.

THE CARPENTERS' HALL LECTURES:

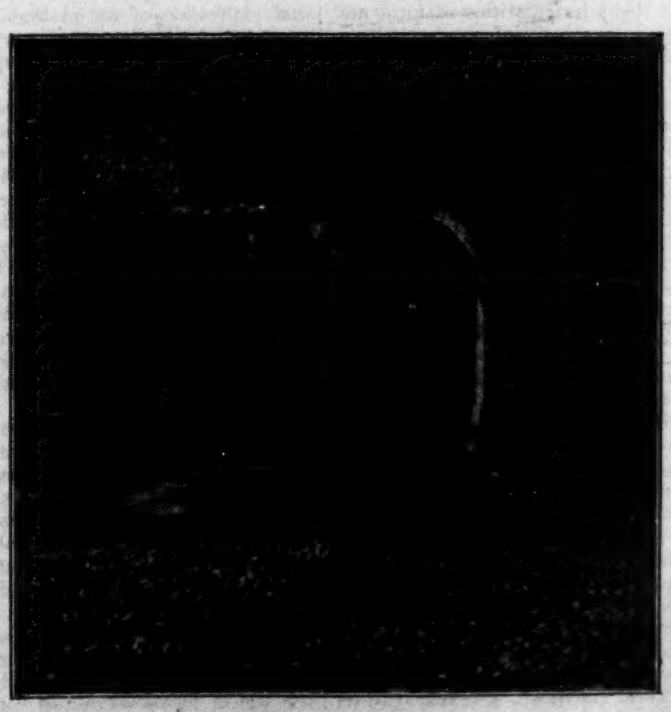
The Art of Building.

The second of the series of thirteen free lectures on "Arts Connected with Building," arranged by the Carpenters' Company, was delivered on Wednesday last week in Carpenters' Hall, London Wall, when Mr. M. H. Baillie Scott lectured on "The Art of Building, with Special Reference to the Use and Abuse of Materials." Mr. Maurice H. Pocock, Past-Master, Chairman of Committee, presided.

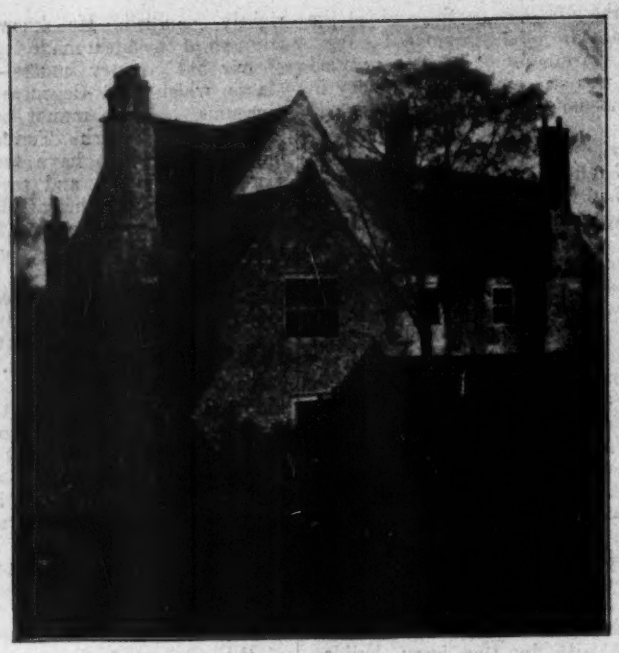
The lecturer, who showed various interesting lantern views in illustration of his remarks, said nowadays when we spoke of art, it was generally understood that we were concerned with a special department of human effort, applied to the production of pictures and statues mainly. The art notes of our newspapers had nothing to say of buildings, and our whole conception of the field of art was of a sphere of activity withdrawn from the main-stream of human endeavour. Habit had led us to take it as a matter of course that while our builders were defacing the country, our artists were quite happily engaged in a world of dreams and shadows, making their pictures of the few remaining remnants of that beauty of the world which the artists of the past went so far to create, and which we could not even protect from destruction. Whenever one saw an artist sketching in some old-world village, one realised afresh how modern art was divorced from the realities of life. No artist in the old days ever contented himself with producing merely shadows of reality. He adorned the hills with castles and set the plains with many a jewel—in moated grange, manor and farmhouse. In the walled town too he was still a creator of beauty in the real. The mother art was the essential thing.

And now there was an almost inevitable and universal ugliness of building. Was there a place they had visited for its natural beauty that had escaped the incursion of the cockney villa? And was it any compensation for this defilement of the world we live in to know that, shut up in some art gallery in the shadow land of modern art, there might be found in the form of isolated pictures some faint reflection of the beauty of the past? Of course we had architecture in our midst. But this was now almost as much withdrawn from the main stream of life as the other arts. Architecture became a kind of dilettante precious cult, practised by eminent gentlemen who played a kind of elaborate game with Classic columns or Gothic pinnacles as the case might be. The young architect knew all about St. Paul's, and could perhaps tell exactly how the cupola above the dome was carried. In the meantime, the houses of the people were supposed to be well enough dealt with by the jerry builder. We were immensely concerned as to the kind of building that was done in ancient Greece, and cared little what kind of building was being done in modern Surbiton. And yet it was just this sort of building which was the vital matter for them, and the study of Greek temples would do little to teach them to solve our problems there. We should do better to consider our old farmhouses and cottages, and see if we could manage to build our suburban villas with something of their simple beauty. Let us give up the ideal of that Grand Manner of building which seemed to aim at impressing the beholder as by a display of pyrotechnics. Personally, he did not want to be impressed by empty grandeur; show him a town where the houses of the people were comely and comfortable and he would not ask for palatial business premises. Rather he would have these business-like, workmanlike, structures fitted for their uses, without ostentatious display. Instead of the Grand Manner, he would put before them another and more worthy ideal, for which he could find no better expression than the Ideal of the True Romance. He wanted, in short, a building with a soul. We were apt to forget the possibilities of building in this direction, and what power of expression there might lay in mere bricks and mortar rightly handled. He knew of no such triumph of the Ideal made real as in the best of our old country houses—not the great places which had degenerated into mere museums, but the manor house and farm houses of about the Tudor period. The builders seemed to have found the magic secret of their art, and such buildings as these made us hope that art might once more take its place in the serious business of life, and not remain as a mere ornamental appendage.

The lecturer then considered the materials to be used in building. In speaking about stone, he said we had object lessons in old buildings in many districts, showing how stone might be beautifully used. It was unfortunate, however, that the modern mason seemed quite unable to profit by such examples: he always wanted to improve on them. The art of masonry might often be made a kind of rude mosaic, in which stones of various shapes and sizes and tints could be combined and arranged. In old cottages in Surrey the irregular spaces between the stones were adorned with scraps of flint, ironstone, and broken red pottery, with excellent effect. In local modern buildings of the same stone the material had been reduced to an absolute regularity of tint and surface, and when the modern mason did descend to rough walling, he let us know it, and could only give us an exaggerated excrescence in the centre of each stone—a confection known as rock-faced, and he seldom knew how to deal with the mortar joint, which in good old work made such a beautiful reticulated pattern of varying shades of grey. In this simple matter of stonewalling there was a whole world of undeveloped art for the mason; but modern architects, obsessed by Classic tradition and the Grand Manner, would take no hints from materials, and demanded only smoothness and regularity, varied occasionally by dreary rustication. If only instead of ignoring the qualities of materials and forcing them into meaningless forms, we began at the other end, what a new world of art would be disclosed to us! A visit to the site of a new building might disclose perhaps the fact that flints were the essential local material for walling. What a palette was there for the artist, of tones of pearly grey! What a variety of textures could be obtained, too! All this could not be found about in books, or learnt about in offices or art schools; it was a kind of rude natural mosaic, and, if rightly done, implied the use of materials



Entrance, Runton Old Hall, Cromer.



Runton Old Hall, Cromer.

in the right way, as it developed to the utmost their possibilities, instead of obliterating their character by forcing them into pre-conceived academic formulas. Instead of letting the materials influence us and suggest the design, we let them have no voice in the matter at all, but simply shaped them into the arbitrary forms we had learnt at school.

As to bricks and brickwork, bricks should first of all express the true inwardness of the stuff they were made of, and as to colour, a tint which was subtilely varied must necessarily be more beautiful than a uniform shade, and more in harmony with natural surroundings. The mortar joint should not be a succession of mechanically ruled lines, and should be neither too light nor too dark in tone, but introduce into the colour scheme a tone of neutral grey, which was always so useful in the general effect of the work, helping to give it that indescribable quality of tone which we find in old brickwork.

The most important quality in roofing materials was texture, and so tiles should be thick; and if their new colour, as was generally the case, was too even in tint to be good, they must have such a texture as would weather and vegetate quickly. It was most important that the tiles should have those slight irregularities of form and surface which gave such interest and charm to old roofs. Nothing was so fatal to the beauty of a roof as tiles which were absolutely regular. If it was impossible to get old tiles, one was bound to accept a tile which was very crude in its effect for the first few years. Perhaps some day tile-makers would weather and mature tiles. The finest kind of roof was one of stone, such as the Colley Weston. It was beautiful when new and grew in grace with age. Slates did not readily yield to Nature's inimitable colouring; the rougher and thicker they were, the better the artist in building would like them. It was unfortunate that thatch was not more widely used for small buildings. If it was treated with some preparation to make it fireproof, the main objection to it was removed. It afforded far the best protection against outside conditions either of heat or cold; and so was well adapted for small buildings where the bedrooms were in the roof.

In dealing with materials generally, and perhaps timber in particular, there were two main ideals which might be followed. In the case of timber which had no great hidden beauties to bring to light by high finish, it was wise to aim at securing some suggestion of those natural graces which belonged to its living existence as a tree. In the case of other special timbers, we might give up this natural beauty for those qualities which could only be educed by a high degree of finish. The great thing to avoid was to halt between these two ideals.

The lecturer then spoke of the treatment of such materials as mahogany, rose-wood, etc. As to wood carving, it must be primarily another means of educing the woodenness of the wood, and this was the main characteristic which struck us in old work. Imitative rivalry with nature was the stupidest kind of ideal, and so the work of Grinling Gibbons, wonderful as it was, seldom became more than a kind of curiosity of art—a triumph of mechanical skill.

It was a difficult matter for the building artist to find a modern glazed tile which he could use. The manufacturers had all aimed at a mechanical regularity of shape, uniformity of pattern and staring glassiness glaze, which made nearly all modern tiles impossible. Certain makers had produced dull tiles which err on the other side, and had a dead lack-lustre aspect. The perfect glazed tile was probably to be found nowadays only in the old Dutch tiles, which in form, texture, and patterning were full of individual character; beauty had been achieved by sympathic treatment of material and expression of its qualities. The drawings on these tiles would probably be a matter of scorn to modern draughtsmen, and yet they were perfect in their way because they spoke eloquently of material and process of manufacture. Was it too much to hope that some of our modern makers could learn this simple art, and give us tiles which did not fix us with a glassy stare?

As to plasterwork, mechanical ideals in this had led to absolutely smooth rigidity of finish, which obliterated all the character of the material and those suggestions of methods of workmanship which lent such interest to the work. They should not finish their plaster with fine stuff, but preserve the texture which the sand gave, and finish from the float with subtle variations in plane. As to colour, the natural tint given by the sand would often be found to be a good one, and in such cases the plaster might be left untinted. If it were to be tinted, let it be for choice some tint which was germane to the material—an earthy colour, such as ochre, and not Nile green, peacock blue, or any of those shades dear to the art decorator.

The lecturer then spoke of glass and metals used in building, and of ferro-concrete. There was something necessarily illogical in the use of ferro-concrete in connexion with those architectural forms which had been evolved as vital and essentially structural features in the buildings of the past. If we were going to use ferro-concrete, let us be logical about it, and, recognising its revolutionary character, have here, if nowhere else, a new style. Let the adornment of the structure within and without be admittedly superficial in character, with no sham features about it. In Venice, the greatest painters of the time used to adorn the external walls of their buildings with paintings. That would hardly serve in London of to-day, but nothing could be better than mosaic and tiles and suchlike washable materials used in decorative ways. And in the country this surface mosaic might take a local flavour, which by the use of pebbles in the form of roughcast or flints, might bring the building into harmony with nature.

In conclusion, he said that we lost sight of the fact that the best of all the pleasures that the world had to offer was in the production of work which we believed to be good. Let us hope that the artist of the future would find both his work and his pleasure in the creation of the world in which we live—the world of building.

A vote of thanks having been passed to the lecturer, the proceedings terminated.

EXHIBITION OF THE CAMBERWELL SCHOOL OF ARTS AND CRAFTS.

AT the South London Art Gallery the annual exhibition of the Camberwell School of Arts and Crafts is now being held. The level maintained by the work of the students is a high one, reflecting great credit on the Principal, Mr. W. B. Dalton. During the past year an Architectural Drawing Class has been added to the already existing Design Class. Among the exhibits in this section, a measured drawing by W. Ritson of a doorcase at St. Mary Abchurch is particularly good; the full size details are admirably drawn. A design for a country house, by C. Chapple, is excellent. As might be expected, the students are more successful in less ambitious subjects of this nature; their more monumental efforts do not display the same originality or grasp of the requirements. The average, however, of the architectural designs is distinctly good. In painting from the life, N. Montes is easily ahead of his fellow students. His lithographs show the same power and knowledge. Two good colour lithographs are shown in a frame labelled with two names, A. Maclaren and A. Laird. Both are clever. The lower one represents a vessel in full sail. There is a genuinely salt and breezy feeling about it which is very refreshing. It is a pity, in view of the general accuracy of observation shown by the drawing of the waves, that the vessel itself should evince such evident marks of being a "landsman's" creation. Some of D. Schindhelm's book illustrations deserve notice, more particularly the one with the title, "Maud has a Garden of Roses." R. Boswell's enamels show great skill in a difficult medium. The most ambitious attempt in this direction is an enamel casket by R. Isaac. Among the specimens of bookbinding we liked best the work of C. Cornish and S. Chapple. D. Pelton's illuminations are admirable. A sideboard by A. Fillamore speaks highly for the Cabinet-Making Class. The design and the workmanship are exceedingly creditable to the author. A signboard and heraldic panel, by W. Clarkson, are excellent pieces of work. There is a wide field for improvement in sign-writing. Shop facias cry aloud for the artistic sign-writer. A lead rainwater pipe-head, by W. Duncan, is unusually good, and quite recalls early XVIIth century work.

In connexion with the Architectural Classes, we understand it is the intention of the Principal, Mr. Dalton, to introduce Town Planning as a special subject into the curriculum. In view of the important place which is likely to be taken in the near future by this important branch of architectural

study, Mr. Dalton's foresight is much to be commended.

The Exhibition will remain open till February 25.

OLD HOUSE AT KINGTON.

KINGTON is situated in the Welsh Marches, or neutral ground between England and Wales, and but two miles from the border; and like most of the surrounding towns and villages contains many interesting old cottages and houses. The one illustrated is situated in Bridge-street, close to the bridge over the River Arrow, and is, perhaps owing to its situation, one of the quaintest houses in the town. DOUGLAS C. LEIGH.

NOTES FROM PARIS.

M. LALOUX, the well-known architect, has succeeded M. Nénot as President of the Société des Artistes Français (Old Salon). M. Daumet will be President of the architectural section. M. Louis Bonnier, "Architecte-Voyer-en-chef" to the Municipality of Paris, has been elected President of the Société des Architectes Diplomés.

It was announced last year that the Municipal Council of Paris had refused to sanction the erection of a Concert-Hall on the site of the old Cirque on the Champs Elysées. It has now, however, been decided to sanction the erection of a large theatre adjoining the central *rond-point* of the Champs Elysées, on the site of Nos. 13 and 15, Avenue Montaigne. The new building will be called "Théâtre des Champs Elysées."

The Committee appointed by the Government to safeguard the architectural perspectives of Paris has decided that henceforth no innovation or alteration shall be made in the façades or dormers of the buildings lining the Rue de Rivoli, the Rue Castiglione, and Rue and Place des Pyramides, without the consent of the architects of the Department of Bâtiments Civils, which is under the control of the Minister of Fine Arts.

M. Charles Famin, architect, the oldest Prix de Rome man, whose 100th birthday was *fêted* last year by the town of Chartes, has just died at the age of 100 years and 11 months. He was a son of Marie Famin, architect, and also a Prix de Rome man, who was commissioned by Napoléon to restore the château of Rambouillet. The venerable architect who is just dead obtained the Prix de Rome in 1839, and was contemporary at the Villa Medici with the painters Flandrin and Hébert, and the architect Ballu, and Gounod the composer. He was a native of Chartres, where in 1861 he was elected President of the Société Archéologique of Eure et Loire, and wrote an interesting memoir on the *dégagement* (there is no precise word for it in English) of Chartres Cathedral. At the age of 97 he engaged in a spirited newspaper skirmish with some of the critics of his scheme in connexion with the cathedral. He lived a life of devotion to his profession, and was respected by all who knew him.

LONDON MASTER BUILDERS' ASSOCIATION.

REPORT, JANUARY, 1910.

THE meeting of the Council, which took place on Thursday, the 20th inst., was largely attended, and the items comprising the agenda unusually interesting to the trade. The President (Mr. F. G. Rice) presided.

The report of the Organisation Committee was read by the Deputy-Chairman, Mr. G. Bird Godson, and approved by the Council. The telephone card giving list of associate members was submitted and approved, and it was ordered that it be distributed. It was also decided to distribute to the London members of the Royal Institute of British Architects, the Surveyors' Institution, and the Quantity Surveyors' Association the handbook published by the London Master Builders' Association.

One ordinary member and eleven associate members were proposed and duly elected.

The report of the Finance Committee was received, and the items of the income and expenditure account and those of the balance sheet of the year ending December 31, 1909, were submitted by the Treasurer (Mr. James S. Holliday), and the professional auditor (Mr. G. A. G. Robertson) made his report, and stated that he had carefully audited the books, vouchers, and investments of the Association and found them correct. They were approved, and recommended to the annual general meeting for adoption.

The President (Mr. F. G. Rice) reported to the Council that he, together with Mr. Leonard Horner, Mr. G. Bird Godson, Mr. Frank May, Mr. J. Carmichael, Mr. F. Higgs, and the Secretary met in conference representatives of the London Association of Master Masons (Mr. F. Corben, Mr. Walter Tomes, Mr. L. F. Chislett, and Mr. Walpole Collins) on January 18. The possibility of affiliating the two Associations was discussed very fully at this Conference. The conditions to be observed were carefully considered, and the President laid it down very distinctly that the agreements made by the London Master Builders' Association with the workmen's societies must be strictly and honourably observed.

Another Conference was held on the same day, but separately, with the London Association of Master Decorators, when the London Master Builders' Association was represented by the President (Mr. F. G. Rice), Mr. Leonard Horner, Mr. G. Bird Godson, and Mr. James S. Holliday, with the Secretary in attendance, and the London Association of Master Decorators was represented by the President (Mr. H. A. Campbell), Mr. J. Anderson, Mr. F. Dakin, and the Secretary (Mr. A. Davidson). The affiliation of the two bodies was carefully considered, and the President of the London Master Builders' Association (Mr. F. G. Rice) drew attention to the importance of

strict observance of rules made by the London Master Builders' Association with the Trade Unions. At both the above-mentioned conferences many expressions of sympathy and desire for affilation were made, and it is hoped that eventually these and other bodies of employers in the building trade will be combined in taking united action in matters interesting to all those engaged in the industry.

A discussion took place on this report, and the Council considered affiliation desirable, and appointed a committee, consisting of the President (Mr. F. G. Rice), Mr. Leonard Horner, Mr. G. Bird Godson, Mr. James S. Holliday, Mr. Frank May, Mr. Wm. Shepherd, Mr. B. I. Greenwood, and Mr. F. Higgs to consider what terms to recommend for affiliation to the London Master Builders' Association of other bodies and to report to the Council in due course.

The recommendations of the Rules Committee as to the amendment of the Association rules were fully considered. The question of sub-contractors occupied a good deal of attention, and several glaring instances were given of what master builders have to put up with from many who are employed on work which could be done more quickly, with less interference with the organisation of the working of the job, and, perhaps, better by the master builder himself. It was felt that some architects do not appreciate the loss of time, money, and, in some cases, the quality of workmanship, by the ever increasing tendency to foist sub-contractors on those who have all the responsibility on the various works in hand.

It was considered to be a great hardship on builders to be responsible for the work of sub-contractors who do the work that they (the builders) have facilities and ability to carry out and of whom they have no selection, and although it is admitted in some cases architects cease to employ sub-contractors whose want of consideration to the master builder warrants such a course, great hopes were expressed that architects would revert to the former practice of entrusting the master builder with the whole of the work formerly undertaken by him, and which would undoubtedly give him an added interest and pride in his work.

It was decided to hold the annual dinner on the 24th proximo, and the President hopes to be well supported on that occasion.

The question of beginning work before the recognised "starting time" was considered.

WARDROBE IN SATINWOOD AND SYCAMORE.

THIS is the wardrobe by Mr. Minihane, No. 334 at the Arts and Crafts Exhibition (North-room), which was noticed with appreciation in the review of the Exhibition in our issue of January 15.

Wardrobe in Satinwood and Sycamore. By Mr. E. J. Minihane.

No. 334 in the Arts and Crafts Exhibition.

JANUARY 29, 1910.

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All communications must be authenticated by the name and address of the sender, whether for publication or not. No notice can be taken of anonymous communications.

The responsibility of signed articles, letters, and papers read at meetings rests, of course, with the authors.

We cannot undertake to return rejected communications; and the Editor cannot be responsible for drawings, photographs, manuscripts, or other documents, or for models or samples, sent to or left at this office, unless he has specially asked for them.

All drawings sent to or left at this office for consideration should bear the owner's name and address on either the face or back of the drawing. Delay and inconvenience may result from inattention to this.

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N.B.—Illustrations of the First Premiated Design in any important architectural competition will always be accepted for publication by the Editor, whether they have been formally asked for or not.

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MEETINGS.

FRIDAY, JANUARY 28.

Architectural Association Debating Society.—Messrs. W. G. B. Lewis and A. E. Bullock on "Church Architecture—Gothic v. Classic." 7.30 p.m.

London County Council Central School of Arts and Crafts (Lectures on Historic Arts and Crafts).—Mr. A. F. Kendrick on "Embroideries"—II. 6 p.m.

Glasgow Architectural Craftsmen's Society Technical College.—Mr. John Shanks on "Impressions of the White City." Illustrated. 8 p.m.

Institution of Civil Engineers (Students' Meeting).—Mr. H. F Donaldson, C.B., M.Inst.C.E., on "Some Uses of Mechanical Power in Engineering Construction." 8 p.m. Dr. W. C. Unwin, F.R.S., will occupy the chair.

SATURDAY, JANUARY 29.

The Architectural Association.—Second Spring visit.

MONDAY, JANUARY 31.

Royal Institute of British Architects.—(1) To announce the name of the person the Council propose to submit as a fit recipient of the Royal Gold Medal, 1910. (2) The President, Mr. Ernest George, A.R.A., to deliver an address to students. (3) Mr. Mervyn Macartney, F.S.A., to read a criticism of the works submitted for the prizes and studentships, 1909-1910. (4) Presentation of prizes will be made by the President. 8 p.m.

Royal Society of Arts (Cantor Lecture).—Mr. Alan S. Cole, C.B., on "Textile Ornamentation"—III. 8 p.m.

TUESDAY, FEBRUARY 1.

British Museum (Lectures on Ancient Architecture).—By Mr. Banister Fletcher. XVII.—"Roman Theatres and Amphitheatres." 4.30 p.m.

Northern Architectural Association.—(1) Ordinary meeting of the Council. 7 p.m. (2) Mr. G. Hubbard on "Architecture on the Eastern Side of the Adriatic." 7.30 p.m.

Institution of Civil Engineers.—(1) Paper to be further discussed, "The Reconstruction of the Tyne North Pier," by Mr. Ivan Collingwood Barling. (2) Time permitting, the following papers to be read with a view to discussion—"Notes on the Sheffield Water Supply and Statistics Relating Thereto," by Mr. L. S. Mortlock Marsh, and "Statistical and Experimental Data on Filtration," by Mr. W. R. Baldwin-Wiseman, M.Sc. 8 p.m.

WEDNESDAY, FEBRUARY 2.

Carpenters' Hall, London-wall, E.C. (Free Lectures on Arts Connected with Building).—Sir Brumwell Thomas on "The Joiners' Craft." 7.30 p.m.

Edinburgh Architectural Association.—Mr. F. C. Mears on "The Failure of the New Town Plan." 8 p.m.

Builders' Foremen and Clerks of Works' Institution.—Ordinary meeting of the members. 8 p.m.

Royal Archæological Institute.—(1) Exhibition of two alabaster tables, by Mr. Andrew Oliver. (2) Mr. Philip Mainwaring Johnston, F.S.A., F.R.I.B.A., on "Discovery of Early Wall-Paintings in Kingsdown Church, Faringham, Kent." With lantern illustrations. 4.30 p.m.

FRIDAY, FEBRUARY 4.

The Architectural Association.—Mr. W. H. Ward on "Renaissance Church Architecture in France During the Sixteenth Century." 7.30 p.m.

Leicester and Leicestershire Society of Architects.—Mr. Arthur Marshall on "Some Spanish Places and People." Lantern illustrations. 8 p.m.

Institution of Civil Engineers (Students' Meeting).—Mr. L. T. Wilson on "The Construction and Setting-out of a Low-level Sewer." 8 p.m.

SATURDAY, FEBRUARY 5.

Aberdeen Architectural Association.—Discussion meeting. Mr. H. F. David on "Alfred Stevens; his Life and Work." Illustrated. 7.30 p.m.

COURT OF COMMON COUNCIL.

A MEETING of the Court of Common Council was held at the Guildhall on Thursday last week. In the absence of the Lord Mayor, Alderman Sir John Bell, Bart., presided.

The Engineer's Staff.—The Streets Committee, reporting on the subject of the reorganisation of the Engineer's staff, stated that they had made the following appointments, viz.:—Mr. Ernest Edward Finch, chief assistant to the Engineer; Mr. George Daniel Trusler, inspector of outdoor works; Mr. Harold Clarke, measuring clerk; Mr. John Frederick Coldwell, inspector of sewers.

Iron and Glass Shelters.—The same Committee, reporting on an application on behalf of the Metropolitan District Railway Company, for permission to erect iron and glass shelters over the footways of Byward-street (Mark-lane Station) and Fish Street-hill and King William-street (Monument Station), recommended that the application be complied with, so far as the Corporation has power in the matter, subject to the work being carried out to the satisfaction of the Engineer, and to the structures being kept sufficiently illuminated during the usual street lighting hours, and remaining only during the pleasure of the Corporation.—The Court agreed.

Blackfriars Bridge Tramways.—The Bridge House Estates Committee submitted a report with reference to the lease for twenty-one years agreed to be granted to the London County Council of the tramways over Blackfriars Bridge, stating that the rent in respect of the way-leave for tramways has been agreed at 1*l.* per annum, and that the Council has agreed to reimburse the Corporation the cost of laying the tramways by a payment of 500*l.* per annum over the term of the twenty-one years' lease; further suggesting the grant to the Council of a way-leave over the bridge for pipes and ducts in connexion with the tramways for a term co-extensive with the lease of the tramways, at a rental of 1*l.* per annum, and recommending that the City Seal be affixed to the lease and licence.

International Congress of Architects.—An application of the President of the Royal Institute of British Architects for the use of the Guildhall on the afternoon of Monday, July 11 next, for the inaugural meeting of the International Congress of Architects, was referred to the City Lands Committee.

Contracts and British Manufactures.—Mr. John Harris moved:—"That it be referred to a Committee to consider and report as to the expediency of directing that in future a clause be inserted in all tenders and contracts for the supply of manufactured articles required for the Corporation, that such articles should be of British manufacture."—The motion was seconded by Mr. Fortescue, and carried unanimously.

Fifty Years Ago.

FROM THE *Builder* OF JANUARY 28, 1860.

VAGUE SPECIFICATIONS AND WIDE ESTIMATES.

YOU occasionally astonish your readers by a comparison of the highest and lowest tenders for particular contracts. A notable instance occurred only last week, when a firm of high standing required 413,000*l.* for work that another equally respectable party undertook at 282,000*l.*

A recent number of your paper contained an interesting report of a lecture on the duties of architects, and informed us that a conscientious man would even specify the weight of the hinges for every door in a house and the number of screws. This may be the theory; now for the practice.

Some months ago the guardians of a large union in the country, wishing to enlarge the house, advertised for designs, and selected from a number one as most deserving the premium. Tenders were advertised for, under different trades, and a great many contractors took out quantities and tendered. The sum total of the lowest being very considerably (say 50 per cent.) above the architect's estimate, that gentleman, to use a Persian phrase, ate dirt and retired from view. The contractors, being common fellows, were not even thanked for the trouble they had taken, but were allowed to gather the state of the case from the newspapers. Some time afterwards the guardians again appeared, under new guidance, and contractors were again informed that they might estimate for a totally new arrangement; of course involving a repetition of the labour of taking out quantities. Being desirous of seeing the play out, I inspected the specification (?) of the engineer's work, and took notes of all the material points of it, which I send for the benefit of your readers. You will observe I have dropped the formality of office language, but in other respects the summary is a fair condensation of the original, and gives actual dimensions and quantities wherever they could be found to copy. Now, sir, I appeal to you whether you would be surprised, with no better materials than this to work upon, if one tender should be double or even three times the amount of another. Being myself a contractor, I cannot afford to offend the architect by calling the attention of his employers to the shortcomings of their adviser; and were I foolish enough to do so should probably be abused by all parties. However the fact is patent. The specification is a public document, and possibly this notice of it may induce people who talk of the recklessness of estimating to think that there is often something to be said on both sides of a story. A CONTRACTER.

N.B.—I hesitated for some time between the *Builder* and *Punch*, but decided to appeal to you first.

*** That is a point for the institution of the Quantity Surveyor, at all events.—ED.

Illustrations.

LIVERPOOL COTTON EXCHANGE.

THE view represents the exterior of the Liverpool Cotton Exchange as executed. A full description of the building appeared in our issue of December 8, 1906 (page 666).

The front is of Portland stone. The two crowning figures on the cupolas symbolise respectively "The River Mersey" and "The Ocean."

The architects are Messrs. H. A. Matear and F. W. Simon.

DESIGN FOR CORNWALL COUNTY OFFICES.

WE publish the perspective view and the plan of Mr. R. Atkinson's fine competition design for the Cornwall County Council Offices, of which we published the detail elevation on December 4. Both drawings formed part of the Architectural Room exhibition at the last Royal Academy.

The plan is a somewhat unusual one, on a scheme which offers considerable suggestion for architectural effect. The Council-room is, we presume, on the upper or main floor.

ADDITIONS TO "PIPER'S CORNER," HIGH WYCOMBE.

THE architect writes that the alterations and additions to "Piper's Corner" have been so much altered in execution that it is difficult to say very much about them from the drawing we are publishing.

The old house had but little servants' accommodation and offices, the object of the additions being to provide these, as well as a large studio on the first floor, with an ante-room and dressing accommodation.

The new buildings are grouped round an internal courtyard flagged with stone, and communicate with the old house by a new staircase hall. The drawing illustrates a view from the north-west, the large window to the studio being on the left, the remaining first floor windows are those of the ante-room and dressing-room to the studio. A separate

outside stair gave access to the ante-room direct from the gardens.

The work is being executed by Messrs. F. K. Cooper & Sons, of Maidenhead, the general contractors; wrought-iron door furniture by Messrs. Barkentin & Krall, of Regent-street.

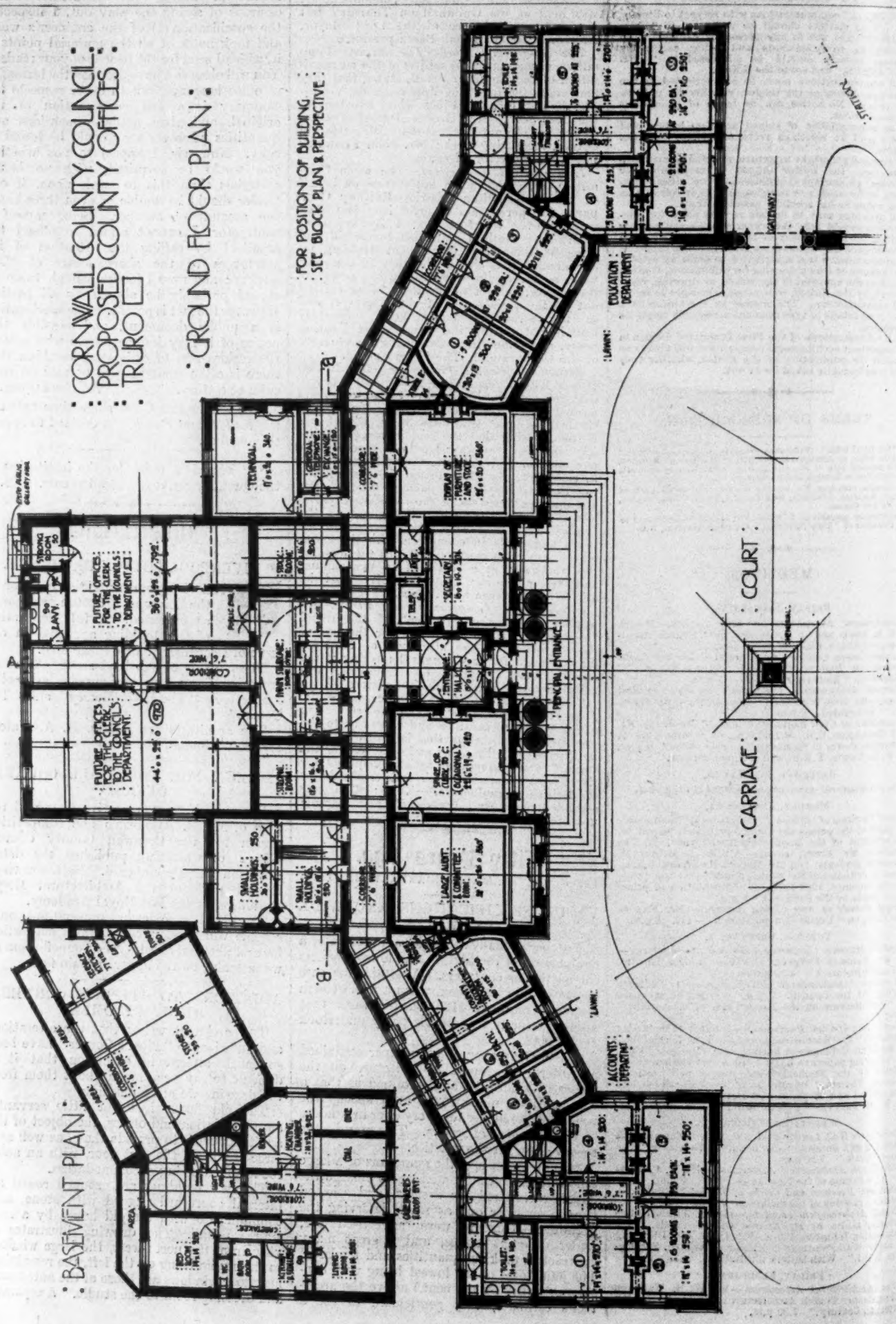
The materials are, for the walls, stock brickwork in cement, with hollow and rough-cast chimneys, sand-faced bricks of a dark colour, with bands of plum-coloured bricks forming panels. The roof is tiled with a mixture of old weathered tiles, black stained tiles, and dark cherry red tiles, all sand-faced. The windows to the courtyard have simple brick facings with arched heads.

PROPOSED HOUSE AT HAMPSTEAD.

THIS house is to be built of small red bricks with darker shade of tiles on the roofs. The exterior woodwork of the windows is painted white. All the floors are laid on solid concrete foundations. A special feature has been made of the chimneys.

The walls of the dining-room are panelled in dark oak, with beams over of the same material.

The kitchen arrangements have been planned so that no windows overlook the garden. A special feature has been made



THE LIVERPOOL COTTON EXCHANGE.
HUON. A. MATEAR. } ARCHITECTS.
F. W. SIMON.

INK PHOTO SYNDICATE & C. L. 4 & 5, EAST HARDING STREET, FETTER LANE, E.C.

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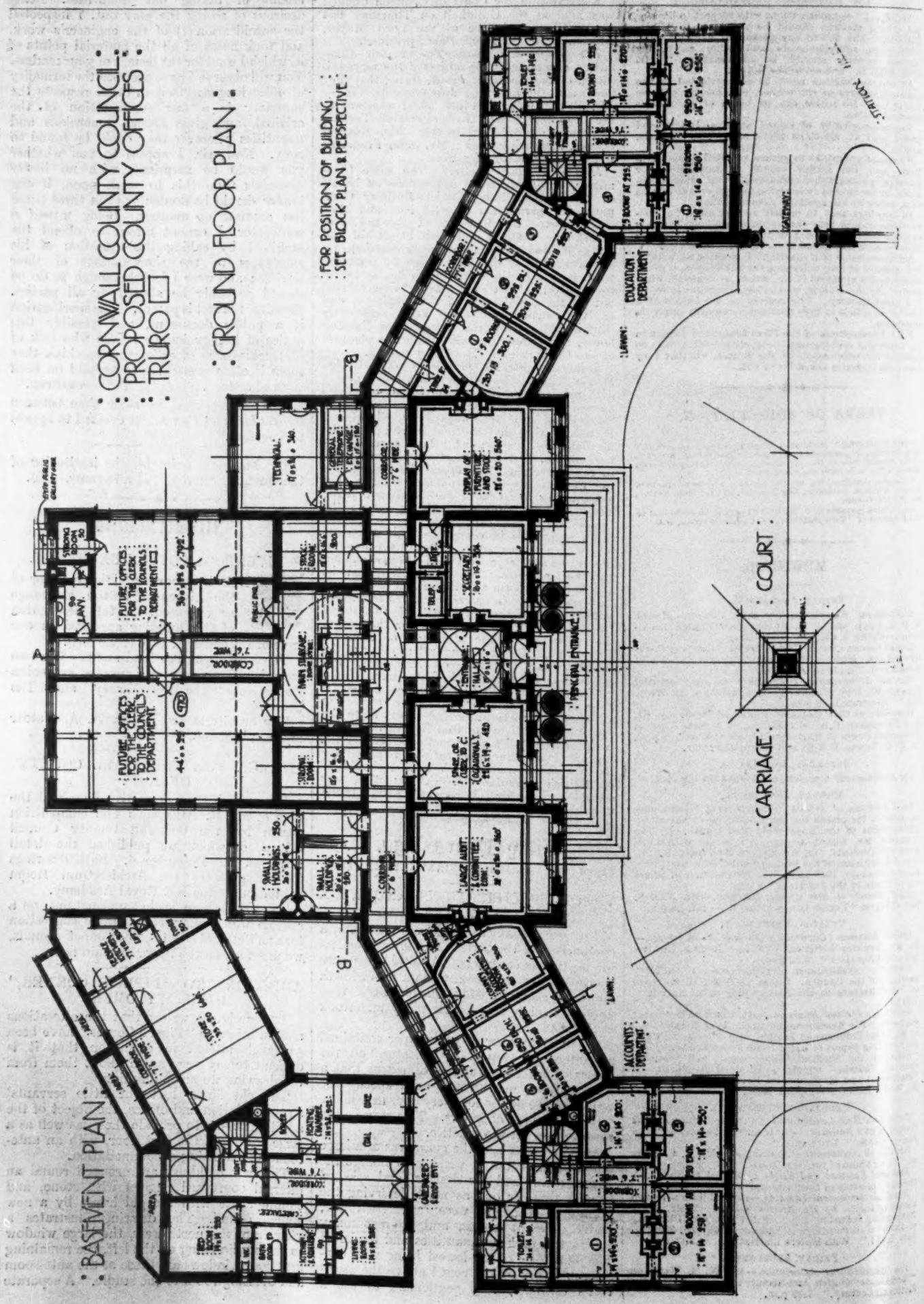

THE LIVERPOOL COTTON EXCHANGE.
HUGH. A. MATEAR.
F. W. SIMON. } ARCHITECTS.

INK PHOTO SPRAGUE & C° L° 4 & 5, EAST HARDING STREET, FETTER LANE, E.C.

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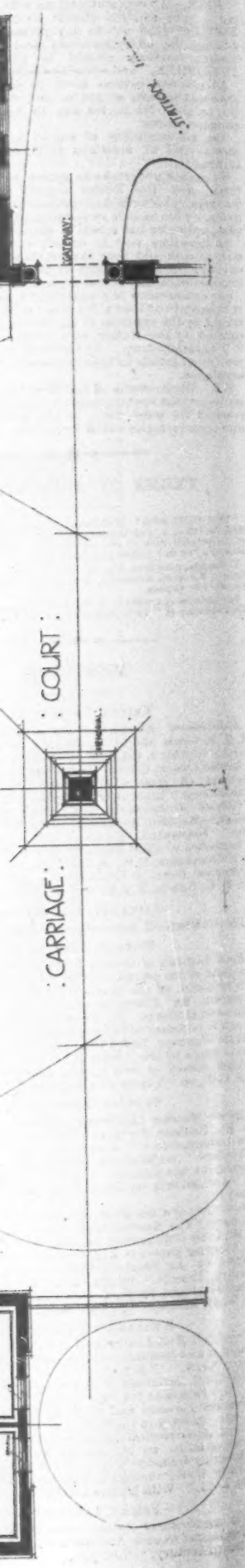

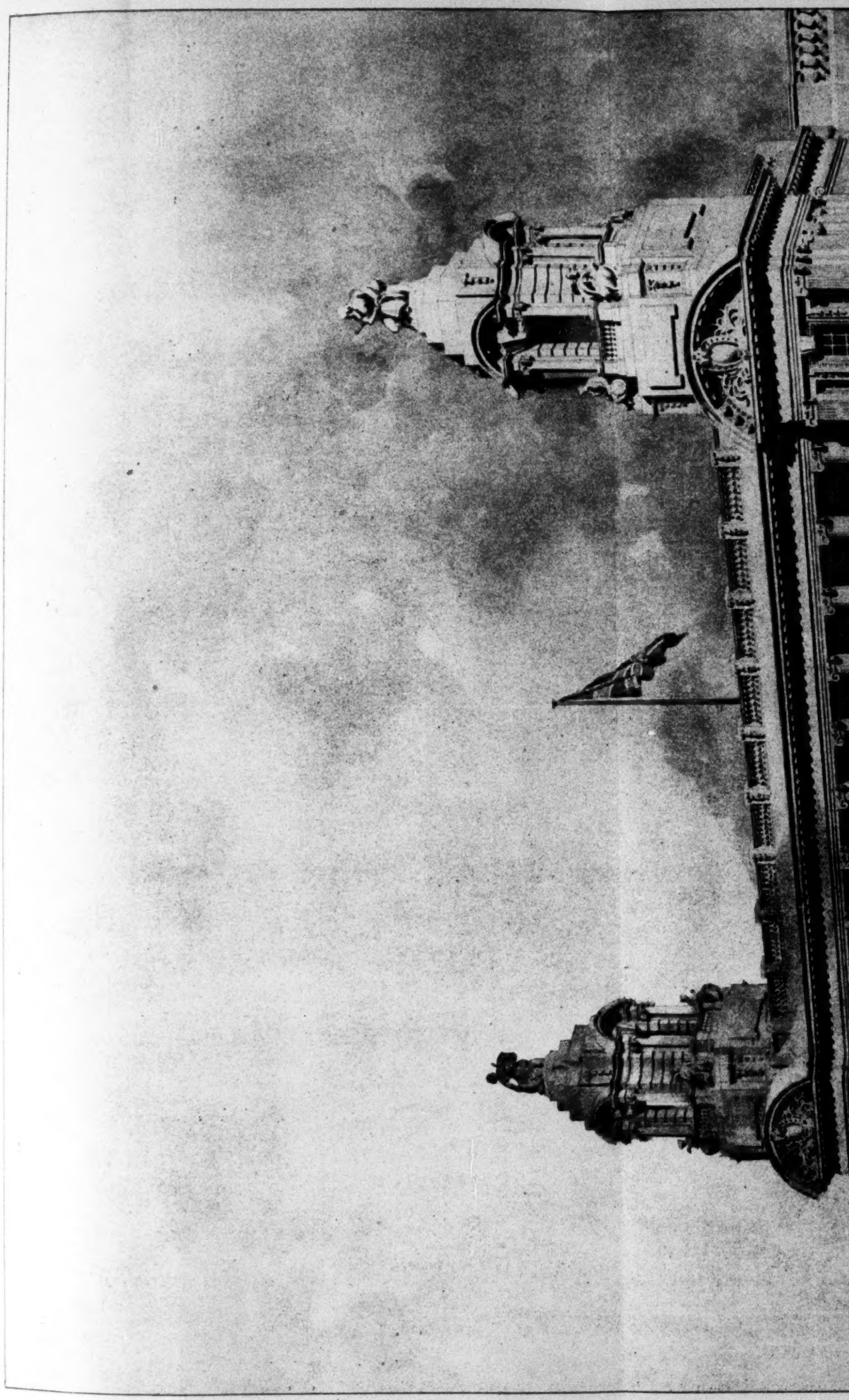

THE LIVERPOOL COTTON EXCHANGE.

MUOM. A. MATSAR. }
F. W. SIMON. } ARCHITECTS.

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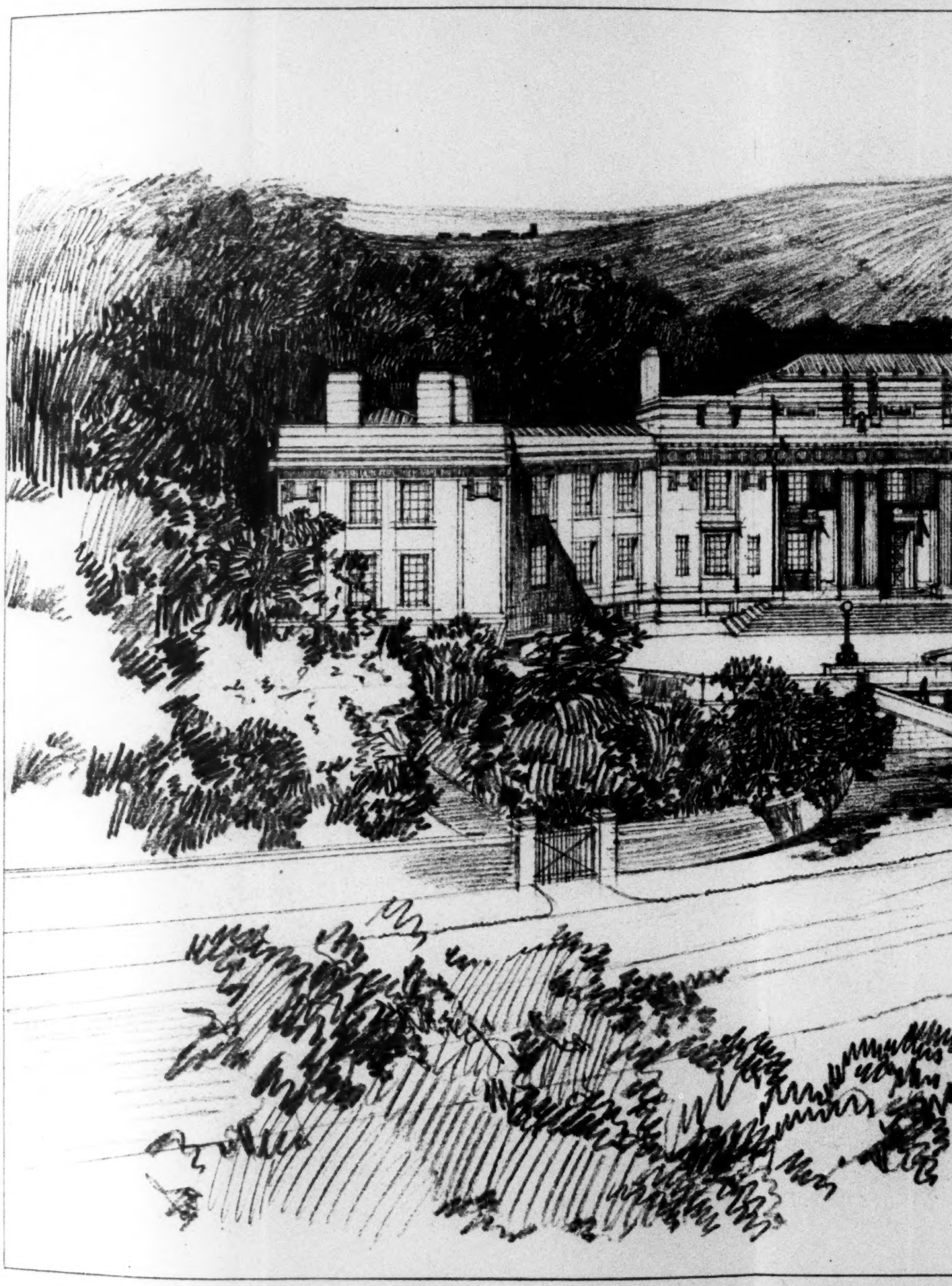
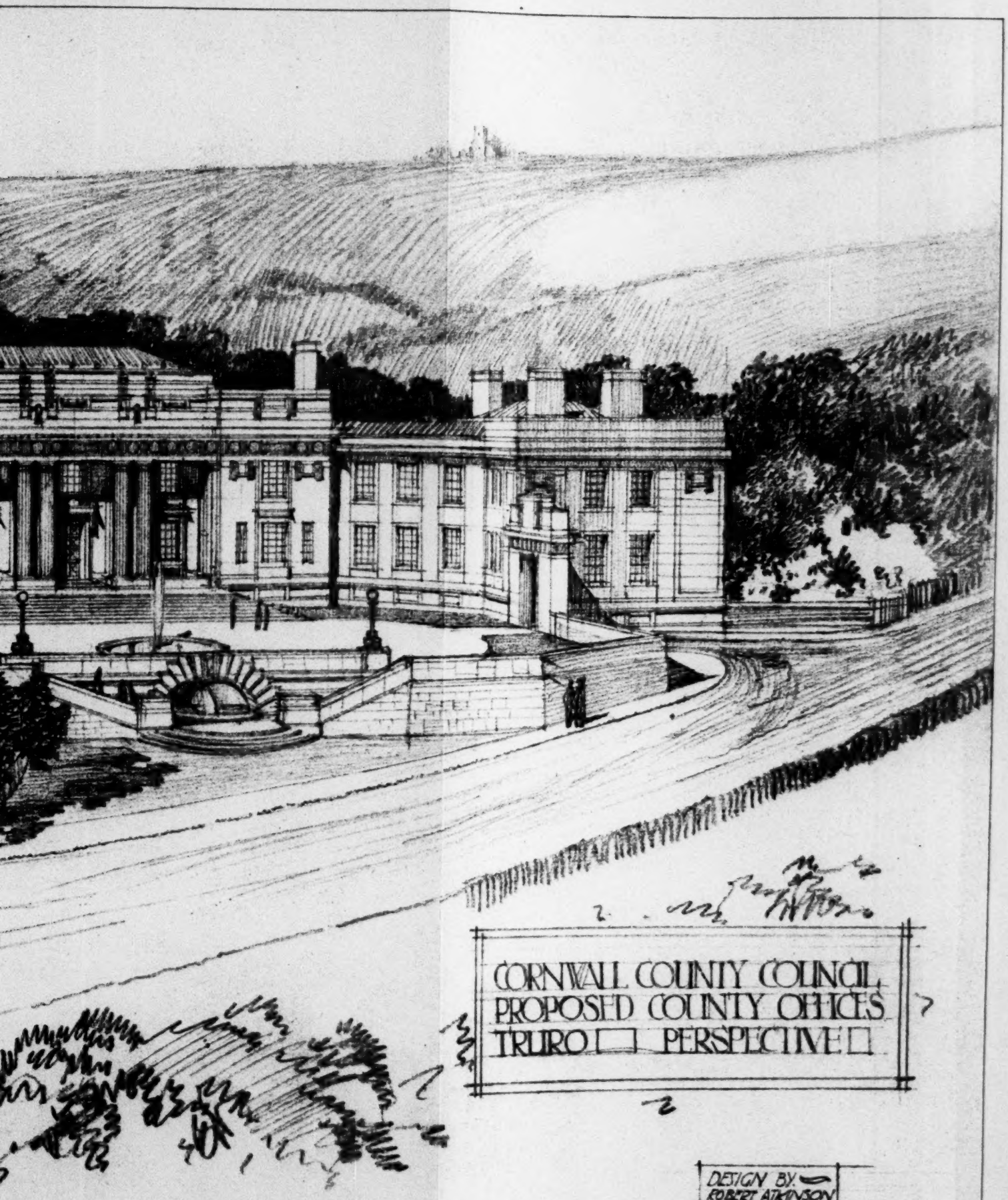


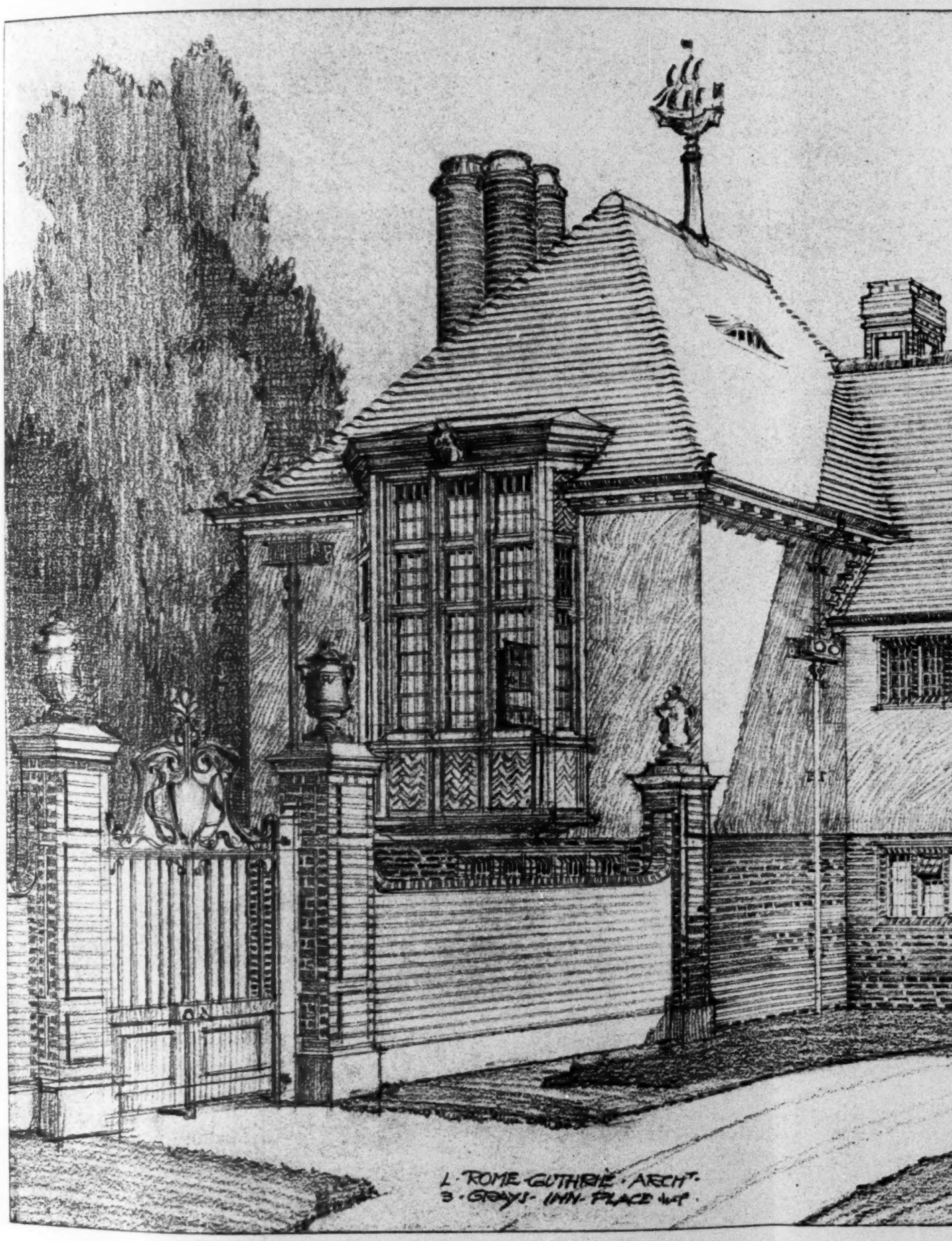
Royal Academy Exhibition, 1909.



CORNWALL COUNTY COUNCIL.
PROPOSED COUNTY OFFICES
TRURO ☐ PERSPECTIVE ☐

DESIGN BY
ROBERT ATKINSON
2 SOUTH SQUARE
GRAYS INN. W.C.

INK-PHOTO SPRAGUE & Co LTD 4 & 5 EAST HARDING STREET FETTER LANE, E.C.



Royal Academy Exhibition, 1909.

Additions to Pipers Corner.
High Wycombe Bucks.
for Hermann Landau Esq.

"INK-PHOTO" SPRAGUE & Co. LTD. 4 & 5, EAST HARDING STREET, FETTER LANE, E.C.

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REVIEWS OF BOOKS:

Monthly Supplement to "The Builder."

Books.

The Evolution of Italian Sculpture. By Lord Balcarres. Pp. 342; and 120 illustrations. (London; John Murray; 1909. 21s.)

Lord Balcarres starts his survey of Italian sculpture with the assumption that it was the Teutonic invaders of Italy who brought to the land "those impulses which were necessary to revitalise the dying embers of Imperial Rome." There is in the earliest Italian sculpture a Gothic vigour and a certain rigidity of style and line which represent much what might have been expected from the union of a young northern race with the half-forgotten influence of classic feeling. It may be naïve, but there is nothing of the Gothic "wolfishness" about it. There was not only the influence of Roman tradition, but perhaps also, as Browning suggests, that of the wandering Greek:—

> "Witness a Greek or two from the abysm
> That stray through Florence town with studious air,
> Calming the chisel of that Pisan pair:
> If Nicolo should carve a Christus yet!"

Those were the days when Italian sculpture had all before it, and was feeling its way; a successful work in sculpture being an achievement, half unexpected, to make the artist a marvel to the crowd. Niccolo, as the author says, was probably as much a portent to his own contemporaries as Bernini in his own generation; "but the more carefully one examines the forerunners of Niccolo, the more clearly does one see that he represents the final outcome of secular tradition and development. He is the lineal descendant of the last of the sarcophagi; he represents the final fruition of Roman art." Out of this was to grow an art of sculpture less classically abstract than the Roman, but both more severe in style and more grave in meaning and suggestion.

In his chapter on the "Progress of Form," the author notices how prevalent was the preference for the art of bas-relief, which lent itself so well to the decoration of lunettes, altars, gallery fronts, bronze doors. It was only in the later period that the figure in the round struggled to the front. Its beginnings were found in the pulpits and shrines of the Pisan school, supported by free-standing figures. It is an immense step from these to the mastery and freedom of Gian Bologna's "Rape of the Sabine Women," or woman rather, for he is content with one Roman and one Sabine. Michelangelo, according to the author, "thought in groups"; in his painting perhaps this is true, we should hardly have said it of his sculpture; at least in his greatest works it was only a group of two. Lord Balcarres remarks with truth on the continuity and sequence of his line and composition in these groups, as compared with Bernini. The taste of the latter sculptor's period demanded something more agitated; his groups always express movement, those of Michelangelo repose. The author seems to us a little too tender towards Bernini, who was the type of sensationalism in sculpture; we agree, however, that there is something interesting and out of the commonplace in the expression of the two heads in the Apollo and Daphne group.

From such grouping of human figures we pass to the equestrian statue, of which, as the author observes, Italy is *par excellence* the home; and in Venice, with her streets of water, oddly enough, more equestrian statues are to be found than anywhere else. The author brings before us, in an interesting succession, several such statues in which we see the progress from adventitious helps to the stability of the sculptured horse—attendant figures assisting to support it—to the greater freedom and boldness of the Colleone statue, where the sculptor ventured to support the horse on three of his own legs alone, the fourth being raised. Under the head "Michelangelo as Master of Form" the author remarks, with truth, how the universal, the typical human form was Michelangelo's ideal; even those which were nominally portrait statues losing the appearance of portraiture in their grand abstraction of humanity. Portraiture in Italian sculpture is the subject of a separate chapter, illustrated by many fine busts, the form in which sculptors seem to have intuitively felt that portrait was best, thus getting rid of the difficulty of the realism of costume, and concentrating the interest on the head. It is a pity that this view is not more prevalently followed now, in a day when the costume offers far less assistance to the sculptor's ideals than did the more picturesque and artistic costumes of the Renaissance.

"Anatomy and the Nude" is the subject of an interesting chapter. The early Italian sculptors of the nude had to fight against ecclesiastical censure to some extent; it was not till the days of Michelangelo and Cellini that it came to be recognised that the whole of art was founded on the organic structure of mankind. The study of anatomy at all did not commence till the XVth century, and then at first in a casual and empiric manner. Lord Balcarres remarks, and it is an important point in judging of Italian sculpture, that the sculptors were apparently not hampered by any canon as to the proportions of the figure; they were influenced rather by "a whole-hearted desire to stimulate æsthetic ambitions." It is curious to contrast Donatello's nude David with Michelangelo's. Donatello's figure is the essence of naturalness; it is simply a nude youth in an easy and natural attitude, gazing downwards and holding in one hand the sword and in the other the pebble which was to take its place as a weapon. Michelangelo's figure is not so much the youth David as a nude study (with a head rather too large for the body); it might represent anyone; it is an abstract figure with no special character about it. Such a treatment is however quite in keeping with Michelangelo's artistic aspirations.

St. Modesta: from the North Porch, Chartres (see next page).

We have not space here to follow Lord Balcarres through his chapters on "Religious Thought" and "Classical Thought" as influencing Italian sculpture. They contain many interesting reflections on the relations between the life and the sculpture of the Renaissance. We came somewhere, however (but could not find the passage again to verify it), on an intimation that Donatello's "St. George" showed a shortcoming in sculptural beauty of line, whatever its merit in character. We cannot agree; we should say the St. George is one of the most remarkable instances in sculpture of a noble severity of line exactly in accordance with the idea of a sculptured hero; a mingling of Greek restraint of style with the expression of earnest purpose of the Christian knight. It is much more beautiful than the "David," which has admirable boyish character but is not very sculpturesque in line. In the chapter on "The Baroque" the author makes the shrewd remark that though Baroque sculpture, as a school, was comprised in the period between Bernini and Canova, Michelangelo was not without a taint of the spirit which was afterwards to people the Peninsular with decadent sculpture. The "Moses" certainly betrays it.

This is a most admirable book both for its matter and illustrations; a worthy study on a great subject.

The Sculptures of Chartres Cathedral. Text in English and French. By MARGARET and ERNEST MARRIAGE. Pp. 270, and 121 plates. (Cambridge University Press. 1909. 12s.)

THIS is a beautiful *résumé* of the sculptured riches of Chartres Cathedral, the chief value lying in the illustrations, reproduced from photographs which are interleaved with the text; the latter, in English at the upper half of the page and in French at the lower half, consists mainly of brief critical or appreciative commentaries on the work.

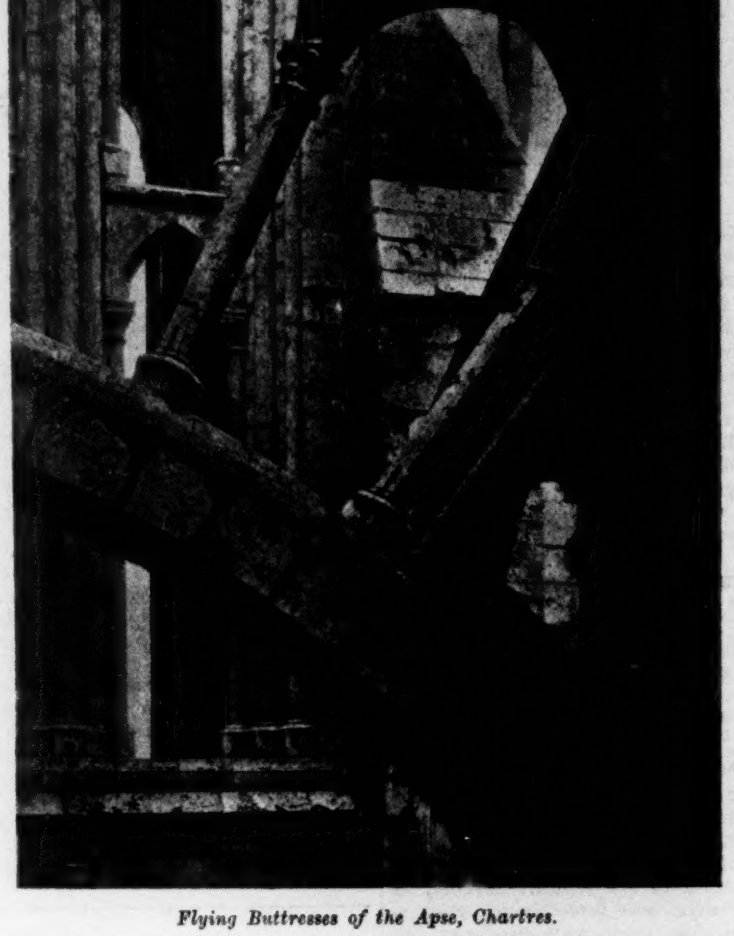
A comparison of the various portions of the sculptured work at Chartres, brought together in this way, emphasises the conclusion that here, as at Wells, artists of different calibre were employed, and some portions of the sculpture show a much higher aim and greater freedom and facility of execution than others. The abnormally long, thin, stiff figures, for instance, on the left and right of the central doorway (Plates 26, 28) have nothing in common with the expressive figure of Saint Modesta on the north porch; the former are decorative carving; this is sculpture.

We reproduce also an illustration showing one of the famous wheel-like flying buttresses, with other details of the building seen through them; an interesting architectural corner.

The Colour of Rome: Historic, Personal, and Local. By OLAVE MURIEL POTTER. With illustrations by YOSHIO MARKINO. Pp. xxx.: 256. Sixty plates. (London: Chatto & Windus; 1909. 20s.)

THIS is what we should call "a drawing-room book," but it is a very beautiful one. The *raison d'être* of it seems to be the series of coloured plates from the water-colour drawings of M. Markino, the Japanese artist who has already, we believe, illustrated London, and who seems to have been more especially struck with the amount of colour in Rome. The colour may possibly be a little helped, if not in the original drawings, in the chromo-lithograph reproductions, as there are delicate gradations of colour which chromo-lithography cannot give. But the plates are really beautiful, and are a credit both to the artist and to the lithographer.

In calling it a drawing-room book we by no means intend to imply that the text is not worth attention; it is written in a charming style and with an enthusiasm for the subject; but its merit is literary only; it is neither a guide-book nor a treatise for the student.



Flying Buttresses of the Apse, Chartres.

The short chapter by the artist, written in an occasionally imperfect or unconventional English which gives it an additional piquancy, is one of the best things in the book. The writer suggests to us (what one might not have thought of otherwise) how completely different a spectacle Rome is to an Oriental, who has no historic connexion or association with it, from what it is to a European, who regards it as the radiating point of the history of the modern world. "To us Japanese," he says, "Rome is only a strange town." One may be excused for thinking that the Japanese, in that case, lose a good deal of intellectual interest. Mr. Markino does not at all like the Baroque churches in Rome; "they are as ugly as could be, just like the heads of stag-beetles." Without quite understanding the simile, we are disposed to agree with the opinion.

English Furniture and Decoration, 1680—1800. By G. M. ELLWOOD. Pp. 187. (London: B. T. Batsford. 25s.)

THIS book consists of a series of photographs of English furniture and interior decoration, designed in the hundred and twenty years between 1680 and 1800. Mr. Ellwood has prefixed an introduction briefly describing the characteristics of the various styles of the period. On page 31 is a splendid example of a Queen Anne lacquer settee, now the property of Lady Wolseley. Some interiors of Carrington House, Whitehall, unfortunately now pulled down, are given. Sir Wm. Chambers was the architect, and the house was a very fine example of his work. Designed about 1760, it represented the intermediate stage between the heavier Renaissance of the first half of the XVIIIth century and the somewhat attenuated grace of the Adams, which was destined to be the preponderating influence of the latter half of the century. This phase is well shown by Lansdowne House, the hall of which possesses a classic correctness and elegance which our present-day essays in this manner have completely lost; it is interesting as an example of the Adams in a more than usually monumental mood. Two rooms in Sir John Soane's house are illustrated. For ingenuity and variety of design this house deserves more attention than it has hitherto received. The date of Soane's death is incorrectly given as 1812. As late as the 'twenties of the last century, he was tracing the Greek fret over portions of Regent-street. He died in 1837. The painted Sheraton settee on page 152 is extremely beautiful. The work forms a fascinating picture-book of a period in which the decorative arts in England reached their meridian. As a graphic chart of the various styles and fashions of furniture it should prove invaluable to both designer and collector.

Memorials of Old Yorkshire. Edited by T. M. FALLOW, F.S.A. Pp. 305. (London: George Allen & Sons. 1909. 15s.)

IN the case of Yorkshire, where the area and architectural interest are so great, the selection of subjects to be dealt with must have been attended with more than usual difficulty. The omission of much has been necessary—the subject of the monastic remains alone would be sufficient to provide a good-sized volume, but we understand from the Preface that it is proposed to issue a second volume to include this and other subjects.

The present volume would be of value if only for the paper by Mr. Keyser on the Norman doorways, the twenty-eight plates from photographs that illustrate it, and the carefully compiled list of churches in the country that still retain work of the Norman period. In another interesting paper—on the village churches of the county—an error seems to have been made in the title of the plate facing page 150. It is entitled, "Campsall Church, S.W.," but

does not agree with the ground plan, or with the references to the church in the letterpress. Not less valuable are the well illustrated papers on Bells and Bell Founders and on the Castles. The reproduction of a drawing in the Records of the Duchy of Lancaster of Pontefract gives a more than usually good idea of a mediæval castle and the imposing effect it must have had when complete.

Chapters on the Prehistoric and Roman remains, on the Royal Forests, and on Folklore combine with the papers already named in making a volume of exceptional interest.

The Baronial and Ecclesiastical Antiquities of Scotland. By R. W. Billings. Parts XVII. to XX. (Edinburgh: T. N. Foulis. 1909. 1s. per part.)

The reprint of Billings's work is completed with the issue of Part XX. The parts up to and including Part XVI. have already been noticed from time to time. The last four parts include views of the Cistercian Abbeys of Melrose, New, and Pluscardin, the Cluniac Abbey at Paisley, and the curious and elaborate chapel at Rosslyn. Domestic work is represented by several castles (including Tantalon), Spynie Palace, and Mar's Lodging and Argyll's house at Stirling. The index and title-page for Vol. IV. is issued with Part XX. Although in some cases some loss in the sharpness of the originals may have occurred in the reproduction, the plates as a whole have been very carefully done, and to those who cannot obtain the original work this reprint will be welcome.

Bungalow Residences. By Percival T. Harrison, A.M.Inst.C.E., M.R.S.I. Pp. 76 and twenty-two plates. (London: Crosby Lockwood & Son. 1909. 3s. 6d.).

Mr. Harrison is the Borough Engineer and Surveyor at Dorchester, and it was to be expected that his book would deal more fully with the practical than with the artistic part of bungalow-design. Five out of the seven chapters are devoted to by-laws, choice of site, materials, sanitation and lighting, and cost. On these questions Mr. Harrison is a safe guide, as far as he goes, but as all the five chapters occupy only fifty-four pages of rather large print, it is obvious that much must be left unsaid. The other two chapters on "planning" and "exterior design" run to twenty-two pages, and that on planning contains some useful advice, particularly as to the disadvantage of utilising the living-room as a means of communication between the other parts of the building. Twenty-two plates are given at the end of the book, and these contain plans and elevations of seven bungalows or houses, two small "bathing pavilions" at Bournemouth, and an installation for the bacterial purification of sewage. Architecturally the most interesting houses are the two designed by Mr. A. W. Venner, and one near Malvern Wells, designed by the author. Whatever may be said for the two first, the last certainly cannot be described as a bungalow. The other designs by the author are less satisfactory. The plan in Plate III. shows the back windows of the principal living room overlooking the backyard with the scullery and E.C. doors in full view; and in Plate XIX. there is a plan with a single living room having three bedrooms opening out of it; this arrangement is, as the author points out, far from satisfactory, but was no doubt adopted for the sake of economy. No bathroom is shown; there is no direct communication between the kitchen and scullery, and the servant must, therefore, go along the passage which leads from the living room to the E.C.; somewhat curiously no fireplaces are shown, and as there are no chimneys or stove-pipes visible in the "general view"—which is the only other illustration of the house—we must assume that gas, oil, or electricity was to be used for heating and cooking. Two of the five houses designed by the author and illustrated in the book, have not been built, and we should think that the estimate of 1,900*l.* for one of these—the stone-built house at Malvern Wells—is very much too low. The cubical contents, if we allow 2 ft. only for the depth of the footings, are very nearly 100,000 cubic ft. For convenience we will say 96,000 cubic ft., and on this basis the author's estimate works out exactly to 4¾d. per cubic foot. If he had doubled it, he would have been nearer the mark.

Lockwood's Builder's, Architect's, Contractor's, and Engineer's Pricebook for 1910. Edited by Francis T. W. Miller, A.R.I.B.A. Pp. 487. (London: Crosby Lockwood & Son. 1910. 4s.)

The fact that the state of the building trade has for the past three or four years remained at practically the same level—that level being unfortunately a somewhat low one—has necessitated very little in the way of revision in a pricebook. The tendency has, however, been rather upward than otherwise during the past few months, and there are signs of a welcome change in the immediate future. This has been recognised by a slight increase in prices where any revision has been made.

We must again point out the very misleading discrepancy between the prices of brickwork as given and the note in the heading, as to the method of arriving at variations in value, owing to the price of bricks. The "5s. per rod for every 1s. per difference in the cost of the bricks" is a fair calculation after a proper allowance for profit has been made, but this is totally at variance with the prices given, *e.g.*, in the first two items, the difference is 1*l.* 7s. 6d. instead of 10s., the next 12s. 6d. instead of 5s., and so on all down the column. This is a matter of such simple calculation that these discrepancies should not be possible.

Another matter to which we have more than once called attention is that of discounts, always a most difficult matter to deal with, as anyone who has anything to do with the settlement of builders' accounts knows. In the case of many special articles the list price means very little, being subject often to from 10 per cent. to 25 per cent. discount, in some cases even more. It is absolutely useless, for instance, to give "list prices" of gas pipes and "tariff" of glass, without at least some indication of the discount. In these cases the fluctuations in actual prices are marked by the fluctuations in discounts, the "list prices" and "tariff" being permanent. To insert these without the slightest indication that they are wholly fictitious, and are merely bases of calculations, is worse than useless.

These remarks reply in a greater or lesser degree to all works of this character, but, in spite of this, the mass of information of various kinds, used with a large modicum of practical experience, makes this work one of the most useful of its kind.

Laxton's Builders' Price-Book for 1910. Originally compiled by William Laxton. Ninety-third Edition. Pp. 756. (London: Kelly's Directories, Ltd., 182, 183, and 184, High Holborn, W.C. 4s.)

This—the father of all modern price-books—makes its ninety-third appearance, a fact that must necessarily entitle it to be treated with a large amount of respect, and this it is entitled to on grounds other than that mentioned. It does not bear the stamp of a mere reissue year after year of the same book with little alteration but the date; although for the past few years, the state of trade having been in a stagnant state, the work of the reviser has been light. We are pleased to be able to note, after a careful examination, that while the bulk of the prices remain stationary, others have been altered—up or down—as the case required.

Strangely enough, this work also fails in the somewhat important, if simple, matter of the variation in the price of brickwork. We are afraid the revisers have worked here without reference to their instructions in the heading; although in most cases the discrepancies are not so great as those in the work reviewed above.

It will be understood that a work that contains "about 73,000 prices"—we take the number for granted—it is impossible for a reviewer to examine *all* these, but where we have done so we can safely say that the present edition fully maintains its character for general correctness, which it has held for so many years, and which obtained for it a place in the Law Courts as a reliable authority, albeit the prices rule somewhat high, which is inevitable in a standard work of reference of this nature.

We notice that the compiler gives the general ruling discounts on gas pipes, etc., although glass is inserted at tariff rates. There is more in the note "list prices" in the heading than meets the eye.

We can only add that, while price-books are in existence, if our old friend "Laxton" only keeps up to its present standard, it will find a place on the bookshelves of many men engaged in the building trade.

Spon's Architects' and Builders' Pocket Price-Book. Thirty-seventh Edition. Edited by Clyde Young, A.R.I.B.A. Revised by Stanford M. Brooks, Architect. Pp. 628. (London: E. & F. N. Spon, Ltd., 57, Haymarket. 1910. 3s.)

We welcome the appearance of this handy little volume, and have the greater pleasure in doing so as for some years our criticism of the work in its old form was of rather a severe character. However, having criticised without fear or favour where we thought that criticism was deserved, we are pleased to award our meed of praise to the editor and the reviser for the very thorough way they have done their work. May we claim a certain amount of credit to ourselves for this improvement? Although it is described as a price-book, the memoranda and tables form nearly a third of its bulk. In fact it is a marvel of compactness when one reflects that it is practically an encyclopædia of building. Many authors have been laid under contribution, and amongst other items which can be specially mentioned are those relating to electric lighting and reinforced concrete construction.

We are inclined to agree with the editors as to the value of "Constants of Labour" (page 374). Our experience has been that in most cases they belie their name.

As it was the "price-book" portion that we felt was most open to criticism in the earlier editions, we have carefully perused this and compared the prices with the ordinary market value of work. Taking this as a whole, while they rule somewhat high, they are quite consistent. We think, however, no architect would have any difficulty in persuading a contractor to sign a contract taking them as a basis. In using the book this should be borne in mind.

A word of praise should be given as to the form of the book. It is a very handy size, and the arrangement generally very good. Particularly useful are the marginal headings to the prices.

Taking the whole work, we think the compilers can rest assured that it will take its position amongst books of reference which the very early editions took in their day, but which those of a later date were not entitled to.

The Sanitation, Water Supply, and Sewage Disposal of Country Houses. By Wm. Paul Gerhard, C.E. (New York: D. van Nostrand Co.; London: Crosby Lockwood & Son. 1909.)

A technical book of this kind, written for American readers, is always interesting to the British engineer or architect, although, on account of the different conditions obtaining in the two countries, some parts of it may be of little use to him. Mr. Gerhard's new book is a case in point. Much of it is as interesting and useful to British engineers

as to their brethren across the Atlantic, but it contains passages which are of no practical utility in this country. Yellow fever, for example, is unknown here, and the "observations regarding the transmission of yellow fever by mosquitoes" have merely a general interest. Of a somewhat different character is the author's treatment of the subject of heating. Open fireplaces and stoves are common to the two countries, but the only other method of heating described by the author—namely, by means of central warm-air furnaces—is seldom adopted in British houses; if any system is used in addition to, or instead of, open fires, it is usually either hot water or steam, and these are not mentioned by Mr. Gerhard.

The book is divided into three parts, the first on sanitation (82 pp.), the second on water supply (130 pp.), and the third on sewage-disposal (112 pp.). These are of unequal value, the first being the least satisfactory. According to the preface, "the aim of the author has been to inform and tell his readers 'WHAT TO DO' rather than 'HOW TO DO IT'; in other words, he has endeavoured to establish leading sanitary principles which in turn should lead to correct sanitary practice." Fortunately, this is less true of the second and third parts of the book than of the first, which is a general and somewhat superficial dissertation on the subject of sanitation, without a single illustration, and containing little definite and exact information, but a number of statements which cannot fail to irritate the student in search of information, such as the bald statement on page 46 about the storage of rainwater for domestic use, "it is easy to arrive at a proper size for the cistern, if the amount of water which can be made available is known or estimated." The same obscurity or reticence is observed in dealing with the same subject in Part II. (p. 118), where we are told that, "in determining the sizes of cisterns, the annual mean rainfall of the locality should be looked up from the meteorological records; after making due allowance for evaporation, the water supply available for storage may be calculated." All this is very tantalising to the student; he can calculate the amount of water represented by a rainfall of so many inches on a given surface—a schoolboy could do it—but what he wishes to know is what size of tank must be provided to give an ample but not unduly excessive supply, taking fluctuations of rainfall, droughts, etc., into consideration. Mr. Gerhard, like Bre'r Rabbit, "he lay low an' say nuffin."

Parts II. and III. are, however, of much greater value than the one quotation we have made may have led the reader to infer. They are much more practical than the first, and contain upwards of a hundred illustrations, many of which are from scale drawings of systems of water supply and sewage disposal, designed by the author and other engineers. The method of dealing with the subject is the same in each case, a general account being followed by detailed descriptions of particular installations. Among the matters discussed in the part on water supply are wells, streams, lakes, reservoirs, tanks (underground and overhead), pumps, engines, rams, pipes, and hydrants; and thirteen water supply systems are described and illustrated. Part III. includes a general account of earth-closets, cesspools, sub-surface irrigation, sewage tanks, contact-beds, trickling filters, and many other matters connected with sewage-disposal, and twenty-four examples of systems for country houses and other buildings, or groups of buildings, are described. In these two parts of the book the author has not been content to tell his readers merely "what to do," but has told them also "how to do it," and, as a result, they contain much information of a practical kind, which will be useful to engineering students in this country as well as in America. The publishers have done their part of the work well, but a technical book of this kind ought not to be sent out without an index.

Structural Details. By HENRY S. JACOBY, Professor of Bridge Engineering in Cornell University. Pp. 363. (London: Chapman & Hall, Ltd. 1909. 9s.)

THE general idea of the volume by Professor Jacoby is akin to that of the Students' Column series published a few years ago in the *Builder* on "Details of Structural Iron and Steel," but the matters discussed are by no means identical. Chapter I. contains a most useful collection of data relative to fastenings of all kinds used in framing. Several pages are devoted to the holding power and lateral resistance of nails and spikes—subjects which have been almost neglected in this country and carefully investigated in the United States. Tests made at Watertown Arsenal in 1884 show that the ultimate holding power of cut nails driven perpendicular to the grain averages from 350 lb. to 1,277 lb. per square inch, according to size and the kind of wood. Moreover, when the nail is driven with the taper acting across the grain the average resistance is increased by about 18 per cent. For full details the reader is, of course, referred to the work itself, where also will be found information as to the holding power of ordinary and lag screws, the strength of wooden pins and trenails, and the resistance of anchor bolts.

In Chapter II. the author describes and illustrates numerous points used in timber and steel framing; but, apart from a few examples of American practice, there is nothing which is not already familiar to past students of building construction.

"Wooden Beams and Columns" and "Wooden Roof Trusses" are very fully considered in succeeding chapters, after which some good examples of framed construction are given, and the volume is concluded by a series of notes on timber tests and working unit-stresses. In addition to a number of full-page illustrations the book is provided with six folding-plates showing details of representative timber roof trusses. The volume contains much information which should be welcomed by architects, although its primary object is to serve as a text-book for students.

Buildings for Small Holdings. By THOMAS POTTER, author of "Concrete, its Use in Building." (London: B. T. Batsford. 1909.)

THIS is a thoroughly practical little book dealing with the planning and construction of cottages and farm buildings for small holdings. Some typical plans of simple character are given, and the author then considers in detail various methods of construction for walls, floors, roofs, etc. The quantities and cost are worked out in each case for purposes of comparison. Mr. Potter is in favour of one-storied cottages, and the plans he gives are certainly compact and economical. One of his objections to a cottage of two stories is that the landing is always small, and the bedroom doors must, therefore, be "so close to each other that in case of contagious disease in either room great danger exists," the danger being, we assume, to the occupants of the other rooms; but surely the danger is greater when the bedrooms are entered directly from the living room or scullery, as in the bungalow plans shown. The problem of erecting cheap and durable buildings for small holdings is not an easy one, but Mr. Potter has done much towards solving it, and we can recommend his book to all who are interested in the subject.

The Encyclopædia of Practical Engineering and Allied Trades. Vol. X. Pp. 240. (London: Virtue & Co. 7s. 6d.)

IN this volume we have the concluding part of an essentially practical encyclopædia, which forms a valuable work of reference, not merely for engineers and mechanics of all kinds, but also for architects and builders requiring to refresh the memory or to obtain information on subjects indirectly connected with their regular work. Like all its predecessors, the volume is well printed and abounds in excellent illustrations.

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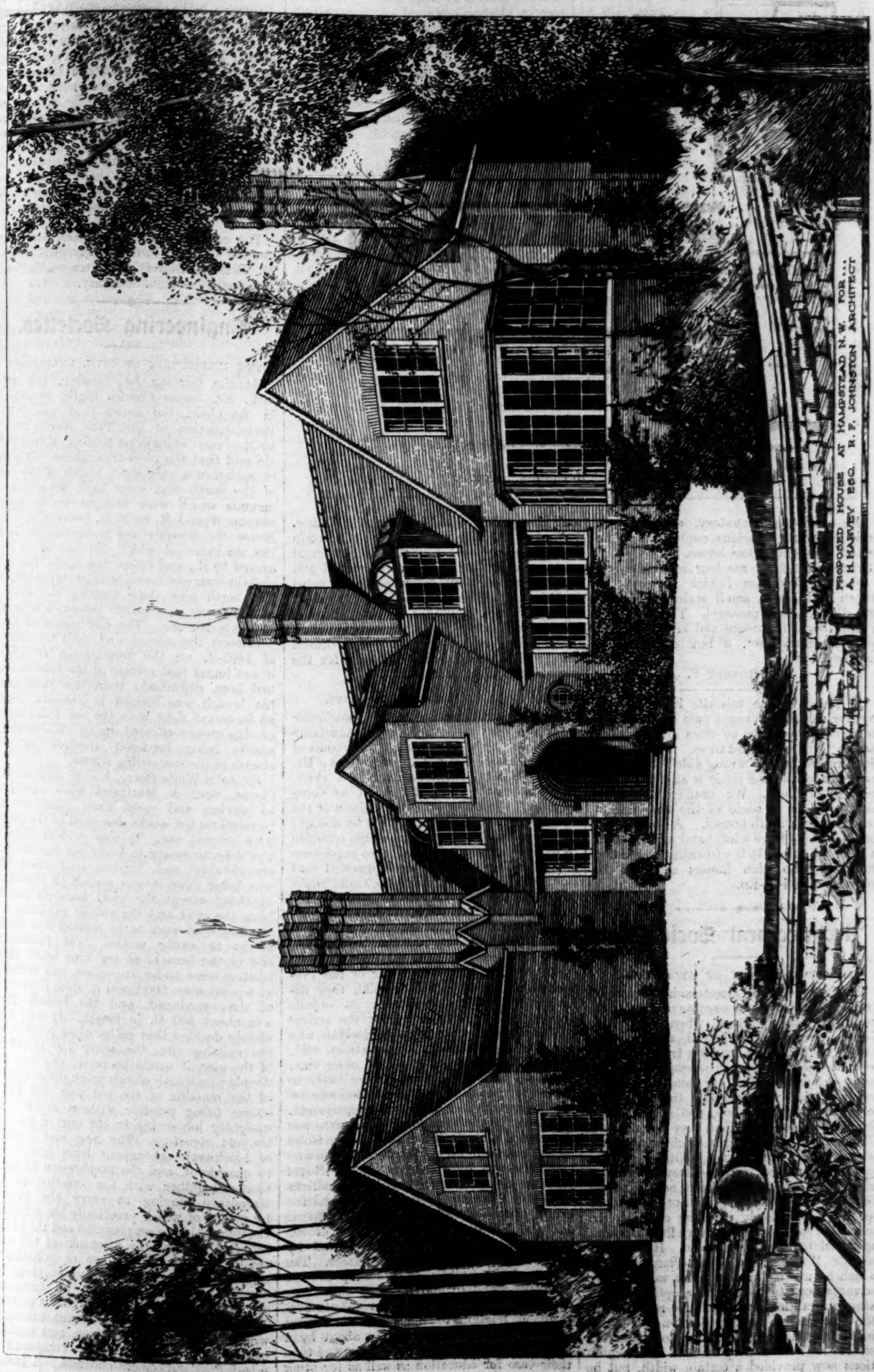
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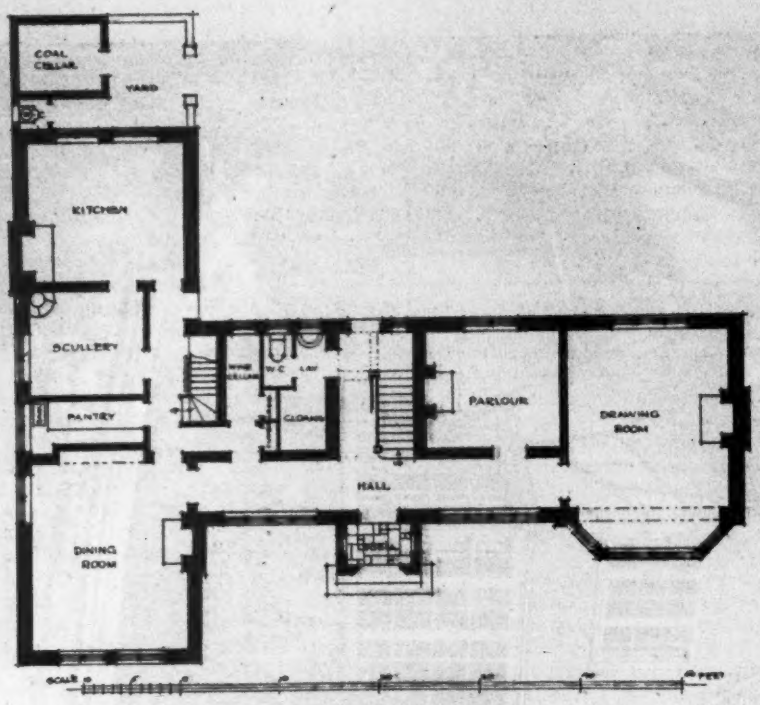
A. H. HARVEY ESQ. R. F. JOHNSTON ARCHITECT



Proposed House at Hampstead. Plan.

of the cloak-room lavatory, and there is ample room for spacious cupboards to be erected throughout the house.

On the first floor are four bedrooms and a servants' bedroom (which is over the kitchen and has a small staircase leading from the kitchen passage). There is also on this floor a bathroom and lavatory, with separate water-closet, a box-room, and a linen cupboard.

ROBERT F. JOHNSTON.

*** There is one mistake in this plan, however, which we cannot pass over without comment, as we have so often drawn attention to it in other instances. The kitchen windows are on the wrong side for lighting the fireplace, and the latter is at the furthest point from them. We noticed the same mistake lately in some of the new Hampstead Garden Suburb houses. A fireplace for cooking should have a left-hand light, as near to it as possible. It is surprising how many architects who plan houses seem to be unaware of this.—ED.

Architectural Societies.

LEICESTER SOCIETY OF ARCHITECTS.

The Leicester and Leicestershire Society of Architects held its first meeting of the session on Friday, the 21st inst., when Mr. W. E. Keites gave his Presidential address. He was sorry to say the building trade had not generally improved much during the twelve months, but they had one consolation, the building trade was generally the last trade to feel a deep depression, and consequently the last to recover. When they got the new Government, things might brighten up, and another good time ensue. With regard to matters connected with the Royal Institute of British Architects, he did not think he need mention anything except that they seemed to be slowly plodding on with the scheme of registration, but very little advance appeared to have been made. He referred to the Housing and Town-Planning Act, which he was inclined to think would prove advantageous to the towns adopting it, and also to localities generally. He remembered the time when it was considered a great thing in the laying-out of estates to make the streets as narrow as possible. The regulations now provided a certain width, but he personally was in favour of wider streets. The wider the road, the better for architects and the people who lived in the houses. Referring to buildings erected in the borough during the past twelve months. He thought no town in England had such a tasteful and carefully-thought-out design as that erected in Leicester as the War Memorial, the work of Mr. McClure. Another erection he would like to mention was the Cripples Guild Hall. The building had a very well proportioned hall, and was admirably adapted for the purpose for which it was used.

GUILD OF ARCHITECTS' ASSISTANTS.

The inaugural meeting of the Manchester Branch of the Guild of Architects' Assistants took place on the 20th inst. at the rooms of the Manchester Society of Architects; Mr. A. E. Corbett, A.R.I.B.A., in the chair. The Chairman expressed himself as being in general sympathy with the objects of the Guild, but in regard to education he thought that assistants might well leave the question to older men, men who had more experience of actual practice. He also suggested that the insurance programme of the Guild might very well be extended to sick and death insurance, and the fourth object of the Guild, that of the formation of a Federal Council of all existing societies, he regarded as very dubious of accomplishment.

Mr. Herbert Cox, a member of the Provisional Committee of the Guild, then delivered an address explaining its objects and methods. He pointed out the arrival of a purely commercial type of principals, who was not only entering into competition with, but gradually squeezing out the older men, and had proved themselves more likely to expect an assistant to work under irksome conditions both as to salary and employment. The report of the Provisional Committee was then read, and the procedure of the Guild in the matter of an employment bureau and insurance was fully described. The Royal Institute of British Architects' examinations were then criticised by the speaker, and the examination in steelwork specially referred to. He hinted that the character of the examinations would be much improved by the introduction of paid examiners. The object of the Guild was to set up a more exclusive standard and to assist only those actually within the profession. The movement in relation to the proposed Federal Council could only be brought about by a strong organised body of assistants, and then their case for education as well as for other perhaps more important matters would obtain the official recognition of the profession.

The meeting was then thrown open to discussion, in the course of which the Chairman stated that he had recently advertised for an assistant, and found his own society inadequate; he had received many replies from men who had been in practice for themselves, and some had held good Government appointments. It was shown that the scheme of unemployment insurance would be managed by a special sub-committee of the Finance Committee, the members of which would only be elected by those participating in unemployment benefit. There would be no place for the "wastrel," because the qualifications of all members would be carefully studied.

The committee for the Branch was then elected, with Mr. P. Caminesky, A.R.I.B.A., 24, Brunswick-street, Chorlton-on-Medlock, Manchester, as Hon. Secretary.

Engineering Societies.

THE INSTITUTION OF CIVIL ENGINEERS.

At the meeting on Tuesday, the 18th inst., Mr. James Charles Inglis, President, in the chair, the paper read was "The Reconstruction of the Tyne North Pier," by Mr. Ivan Collingwood Barling, M.Inst.C.E. He said that the piers throughout, with the exception of a very short length at the root of the north one, were built upon rubble mounds which were brought up to levels varying from 1 ft. to 31 ft. below L.W.O.S.T. Below the mounds was a stratum of sand the thickness of which did not as a rule exceed 10 ft., and below this again was firm shale in some places and boulder clay in others. The north pier alone forming the subject of the paper, no further reference is made to the south one. The pier seems to have withstood the storms well until the winter of 1893-4, on the termination of which it was found that certain of the foundations had been disturbed; from this date until the breach was formed in January, 1897, an incessant fight with the sea was carried on, the repairs effected during each working season being rendered abortive by the storms of the succeeding winter.

Sir John Wolfe Barry, K.C.B., and Messrs. Coode, Son, & Matthews were called in to advise, and upon their joint recommendations the works described in the paper were carried out. It was evident that it would be necessary to lower the foundations considerably, and, further, that when this was being done it was useless to found on anything except the yard material underlying the sand and the rubble mound; but the length of work to be treated was by no means so easily settled. The shoreward end of the breach, at the time when these matters were under discussion, was situated at a point some 500 lineal ft. from the centre of the roundhead, and the breach itself was about 300 ft. in length. It was ultimately decided that rather than rebuild, on the existing site, the outer 750 lineal ft. of the pier, it would be better to carry out double this length of new work under shelter of the remains of the old pier, the latter course being possible without making an unsightly job owing to the curved plan of the old structure. The new pier consists of blockwork throughout from foundation to quay-level, and the preparation of these blocks together with the erection of the temporary staging to carry the cranes, by means of which practically the whole of the foundations were prepared and the blocks set, first claimed the attention of the contractor. Although the use of goliaths as opposed to over-end machines involves the erection of costly staging, an enormous advantage in the rate of progress is secured. The external blocks throughout are faced with granite and both these and such as constitute the hearting are composed of 6-to-1 Portland cement concrete. A header bond was adopted, all blocks being 6 ft. wide, the length varying and the depth being

one or other of a limited number of sizes to suit the different courses. The staging consisted of trestles, each composed of six to eight Oregon piles braced together with old double-headed rails, the space between two adjacent trestles being spanned by latticed girders. To protect the neighbouring foundations of the old work while the new junction was being made, a transverse dam of cylinders was put down as near to the old work as was thought safe. The cylinders were sunk partly by grab and partly by hand labour under air-pressure. In preparing the foundations for the new work large grabs were used for excavating the bulk of the material and the final levelling up was done by bell divers.

As regards the upper work in the original pier, a raised promenade occupying almost half the width of the pier was provided, and beneath this, at a uniform distance apart of 50 ft., were alcoves. Provided the wind be from the north or east, even in very moderate weather the sea breaks over the pier, and as the alcoves under such circumstances had been found to provide inadequate protection to the light-keepers when passing between the lighthouse and the shore, a tunnel has been substituted for these throughout the whole length of the new work, the raised promenade being retained. The floor of the tunnel is about 6 in. above the level of the quay, and access is obtained from one to the other by openings at intervals of 100 lineal ft.

According to the original contract it was provided that the old lighthouse should be taken down and re-erected on the new roundhead, but during the progress of the work it was decided that the old light was by no means of sufficient power for so important a position, and, in addition, it was thought desirable to instal a fog-signal. The new tower is faced with Cornish granite, and as the exposure of the site rendered a strong and wide shaft imperative, a second-order lantern was provided, thus giving plenty of room in case of repair to apparatus, and allowing for the ready replacement of the apparatus with a more powerful one should such course at any time become desirable.

The portion of the old pier co-extensive with the new length was demolished down to the level of low water, the *débris* being deposited between the new and the old sites. The length of the pier immediately shoreward of that above dealt with, had for many years shown signs of movement; and as this movement was increasing year by year, an investigation as to the cause was made. It was found that the lime with which the structure had been built was decomposing, and the movement was solely due to the swelling incident upon such decomposition. It was decided to rebuild such work as was found defective, observations having indicated that the defect did not extend much if at all below the quay level. The length of pier thus found to be defective (about 600 lineal ft.) was of much the same section as that farther seaward, but in this shoreward part the "pockets" between the cross walls were filled with quarry *débris* in place of the concrete subsequently adopted. As the quarry *débris* would not form a suitable foundation for certain portions of the upper work to be renewed, each "pocket" was arched over below the quay level. When the work was opened out the defects were found to accord exactly with what was indicated by the investigation. The work of making good this inner length was let as a supplementary contract, and both it and the original contract have been carried out at a cost of about 450,000*l.*, a figure well below that of the estimate.

THE JUNIOR INSTITUTION OF ENGINEERS.

With the permission of the Chief Engineer to the Westminster Electric Supply Corporation, Sir A. B. W. Kennedy, a large number of members recently visited the Corporation's new Millbank station. The station has been built to replace the old Millbank-street station, which must be pulled down in consequence of the County Council's scheme for making an embankment roadway from the House of Commons towards Chelsea. The County Council have provided the company with a new site in Horseferry-road, and are bearing the expense of rebuilding the station and filling it with plant to an extent equivalent to the present capacity of the old Millbank-street station. The actual size of the Horseferry station and the amount of plant being put in is greater than at Millbank-street, and this additional size and amount of plant is, of course, being paid for by the company. The buildings as at present completed can ultimately hold 6,600 kilowatts of steam turbine-driven plant generating direct-current at 440 volts. It can also ultimately contain about 14,000 kilowatts of motor generator plant, the motors working with three-phase current at 6,600 volts, supplied from the joint station belonging to the Westminster Electric Supply Corporation and the St. James' Company at Grove-road, transforming this to direct current at about 440 volts for supplying the Westminster district. The plant at present erected, or being erected, is as follows:—Four water-tube boilers, each with its own economiser and superheater, capable of producing 25,000 lb. of steam per hour at 200 lb. pressure with 150° superheat; two 300 kilowatt turbines, each driving two 150 kilowatt generators placed tandem, these being the balancer sets; three 1,000 kilowatt turbines, each driving two 500 kilowatt generators placed tandem; separate surface condensers with air pumps for each turbine, and a special arrangement of circulating water-pumps including strainer-boxes and rotary strainers for sucking water from the Thames, forcing it through the condensers and back to the river; direct-current switchboards for controlling the turbine-driven generators, and for controlling the D.C. feeders; a 2,000-ampere-hour battery with 200 cells in all, 100 being a positive battery and the other 100 being a negative battery, arranged across the three-wire system; two battery boosters for enabling these batteries to be charged and discharged, the boosters being regulated by hand; one 500 kilowatt generator arranged with two 250 kilowatt generators for balancing, and two 1,000 kilowatt motor generators, each with single 1,000 kilowatt D.C. machines (the three-phase motors of these motor generators are all of the asynchronous type with slip rings and resistances for starting up); complete high and low tension switch-board for controlling the motor generator plant; electrically-driven travelling cranes in turbine house and motor generator room; coal-conveying machinery, ash hoist and gear, and coal measuring-boxes between the bunkers and the boilers.

Legal Column.

BILL POSTING ON HOUSES.

THE decision of a judge of the Chancery Division in the case of Tubbs *v.* Esser is one of importance, and will be welcomed by those who regret to see buildings disfigured by advertisements. The plaintiff was the owner of certain houses let on leases, of which the defendant was the assignee, which contained covenants that the lessee or his assigns should not "use, exercise, or carry on, or permit to be used, exercised, or carried on upon the demised premises, or any part thereof, any trade or business whatsoever, but would keep the demised houses as and for private dwelling-houses." The defendant had let the gable ends to bill-posting firms as bill-posting stations, and the plaintiff was seeking to restrain him from this use of the premises by an injunction. The Court, following the decision of the Court of Appeal in Nussey *v.* Provincial Bill Posting Company, Ltd. (the *Builder*, April 10 last), held that the display of advertisements by the licence of the lessee was a carrying on by the bill posters of their business and a breach of the covenant, and also a breach of the second part of the covenant. A defence of acquiescence was also set up, but the Court held that when, as here, the owner lived some distance from his property and his rents were transmitted by post there was no possible legal obligation upon him to visit the property subject to ground rents to satisfy himself that the covenants were being observed. The Court further held that there was no evidence of a building scheme of which the landlord had permitted other lessees to infringe the conditions; there was no evidence of any lessee being aware of the contents of other lessees leases. We have recently, in the case of Willé *v.* St. John (the *Builder*, November 27), explained the conditions which must prevail to create a building scheme as creating rights between the various lessees. The injunction was granted, but its operation suspended to enable the defendant to remedy the breach. As regards the case of Nussey *v.* Provincial Bill Posting Company, it will be remembered that in that case the plaintiff and defendant were owners of plots of land on a building estate purchased subject to restrictive conditions, amongst which it was provided that no building should be erected thereon to be used "for the carrying on of any noisy, noisome, offensive, or dangerous trade." The defendant had let his plot to a bill-posting company to exhibit advertisements on a hoarding, and the majority of the Court held that the hoarding was a "building" and the bill posting an "offensive trade."

CONSTRUCTION AND MAINTENANCE OF SCHOOL-HOUSES.

Those who are responsible for the construction and maintenance of schools should note the recent decision of a Divisional Court in Morris *v.* Carnarvon County Council. Two of the classrooms had been fitted with heavy swing-doors which connected them. A child of six years of age having improperly entered the wrong room was ordered to leave it, and in opening the swing-door unassisted she was pinched in the door which had a spring to close it, and her finger had in consequence to be amputated. The doors were so fitted when the Council took over the premises from their predecessors, but the jury at the trial had found that there was negligence in the defendants allowing them to remain in this condition. The Divisional Court on appeal held that at common law the defendants were liable on the principle that where a person is invited upon premises there must be no concealed danger in the nature of a trap. The trap was held not necessarily to be something concealed from the sight, but some danger hidden from the comprehension of the person. In this case the jury had also found that the doors as originally constructed were not suitable for use by infants, although this question was ruled to be inadmissible, as it would have raised a claim which might be barred by the Public Authorities Protection Act as being out of time. The Court held that the findings supported the claim that the defendants were liable for having continued the premises in a dangerous condition. Whether there was a liability under the Education Acts apart from common law was not decided in this case, as the Court intimated some doubt as to whether the words "maintain and keep efficient," as used in these Acts, apply to the fabric at all. In a recent case, Ching *v.* Surrey County Council ("Law Reports," November), a judge of the High Court applied the provisions of the Act as imposing a liability to keep the premises in repair, but the Divisional Court have now thrown some doubt on that decision.

CARRIAGE OF SANITARY CONVENIENCES BY RAILWAY.

The case of Sutcliffe *v.* Great Western Railway Company is of some interest to

those who have to transmit goods difficult to pack by railway. The plaintiffs were manufacturers of sanitary appliances, and consigned certain flushing cisterns lined with lead with projecting levers over the railway company's system. For some thirty years these goods had been received by the company at certain rates unpacked, and were carried at the company's risk, but in 1907 the company had intimated that in future, unless safely packed, such goods would only be accepted at "owner's risk." The consignment in question was carried on these terms, the same rate being charged, although at "owner's risk," and the plaintiffs were suing in respect of damage to the goods. The plaintiffs contended that, no alternative rate being offered, the conditions imposed were not "just and reasonable" within sect. 7 of the Railway and Canal Traffic Act, 1854; the railway company contending that an alternative was offered, as by packing the plaintiff could obtain their acceptance at company's risk. There was a divergence in opinion on the Court of Appeal, but the majority of the Court held in favour of the railway company. Lord Justice Farwell, in his judgment, held that the condition as to packing was reasonable, having regard to the nature of the goods and the large proportion which suffered injury when carried unprotected; but he also found for the company on another ground, that under the earlier part of the section the company would only be liable for "neglect or default," and that the onus of proving this lay on the plaintiffs, and they had not satisfied it. Lord Justice Vaughan Williams dissented. He held the contract unreasonable, and that the railway company accepted the goods as common carriers, and that even if the mere delivery of the goods in a broken condition was not evidence of default, the onus would be on the company to excuse themselves. The case, in view of this divergence of opinion on a question of law and fact which has caused litigation in the Courts ever since the Acts became law, may possibly go to the highest tribunal.

TRADE UNION LAW.

In the case of Russell *v.* the Amalgamated Society of Carpenters, in which the widow of a deceased member of the union was suing the union in respect of certain sums which she alleged were due to her husband, or in the alternative for a return of his contributions, the Court below had decided that the claim could not be enforced by reason of sect. 4 of the Trade Union Act, 1871, which renders certain agreements not enforceable in the Courts of Law. This point was not reargued in the Court of Appeal, but a fresh contention was raised, *i.e.*, that as the objects of the union were not illegal an action would lie at common law apart from the statutes. The Court found that many of the rules of the society were in restraint of trade, and therefore unenforceable at common law. The plaintiff's claim has therefore failed on both grounds, and since trade unions are in many respects placed outside the jurisdiction of the Courts, and their representatives are always contending for this privilege, it is as well that when disputes arise between themselves they should experience some of the disadvantages of being deprived of access to the Courts.

Competition News.

HERNE BAY PIER PAVILION.

The assessor in this competition, Mr. Edwin T. Hall, has awarded the first premium of 25 guineas to Mr. Percy J. Waldram (12, Buckingham-street, Strand) and Messrs. Moscrop, Young, & Glanfield (20, Brook-street, W.C.); and the second premium of 10 guineas to Mr. Stanley C. Ramsey (The Grange, East Cliff, Herne Bay).

DEPTFORD BRANCH LIBRARY.

The Public Libraries Committee of Deptford Borough Council has received a letter from Messrs. Young & Horsley, Norfolk-street, Strand, W.C., the architects who were placed second by the assessor in the recent competition for designs for the New Cross Branch Library, asking that the competition plans submitted by them may be returned to them. By the conditions of the competition, all the premiated designs become the property of the Council, but as Messrs. Young & Horsley offer to let the Council have the plans back if they should at any time be required, the request is to be granted, provided that the Council is allowed the use of the plans at any future time.

Trade Catalogue.

MESSRS. JOHN DICKINSON & CO., of Bolton, send us a pamphlet entitled "Notes and Comments Concerning Natural Rock Asphalt." The book describes the origin of the bituminous limestone found almost exclusively in certain districts of France, Germany, Italy, and Switzerland. It states the most valuable properties of the material, and enumerates its uses in architectural and engineering work, special reference being made to the "Elephant" brand of asphalt specially selected and prepared by the firm, who are contractors as well as manufacturers.

BOOKS RECEIVED.

PAINTS FOR STEEL STRUCTURES. By Houston Lowe. Fifth Edition revised. Pp. 109. (Chapman & Hall. 4s. 6d.)

LAXTON'S BUILDERS' PRICE-BOOK FOR 1910. Pp. 756. (Kelly's Directories, Ltd. 4s.)

THE COMPUTATION OF AREA. By Frank J. Gray, A.M.Inst.C.E. Pp. 64. (The St. Bride's Press. 1s.)

PRACTICAL HOUSING. By J. S. Nettlefold. Pp. 194. (T. Fisher Unwin. 2s. cloth; 1s. paper.)

Correspondence.

FINANCIAL LOSS TO ARCHITECTS CAUSED BY COMPETITIONS: SUGGESTED REMEDY.

SIR,—It has recently occurred to me that the profession does not realise the enormous waste of time and money which is due to competitions; and as the "Regulations for Architectural Competitions" are now under consideration by the Institute, I take the opportunity to draw attention to the financial loss, with the hope that some means may be found to minimise it.

Take a typical case of a 10,000*l.* competition for a limited number of ten. The average out-of-pocket expenses would be at least 20*l.* each, or a total of 200*l.*; the average value of the designs, say 100*l.* each, or a total of 1,000*l.* That is, the competitors pay 200*l.* in expenses, or give 1,000*l.* value of designs for one of them to receive instructions to carry out the work with a commission of 500*l.* If the competitors be twenty-five in number, then they pay as much in expenses (500*l.*) as is the commission.

Take a 10,000*l.* unlimited competition. The number of competitors is almost certain to be fifty, when the expenses at 20*l.* each, would be 1,000*l.*, and the competitors pay twice as much out of pocket in expenses as is received by the successful architect, and prepare designs worth 5,000*l.*, or half the value of the building to be erected. If there be 100 competitors, which is not unusual, then they pay in expenses 2,000*l.*, one-fifth of the value of the building, and prepare designs worth 10,000*l.*, the full value of it.

The competition for the London County Hall was a most severe tax on the profession. The design which I prepared cost 320*l.* in out-of-pocket expenses, allowing nothing for my own services and much time given to it. I am told that other designs cost double that sum. But take the 320*l.* as an average, then the 199 competitors paid 63,680*l.*, which is 20,180*l.* more than the 5 per cent. commission on the 850,000*l.* proposed expenditure on the building. If each competitor had put 320*l.* into a sweepstake, Mr. Ralph Knott might have drawn a prize of 63,680*l.* instead of a commission of 43,500*l.*, and would have had no further work and responsibility; and the other 198 competitors would have saved all their time and thought in the preparation of useless designs, the value of which cannot be put at less than 1,000*l.* each, or 198,000*l.*

I notice considerable difference in the comparative affluence of members of other professions and of architects, and incidentally in their social position, and I attribute this to the unproductive labour and expenses of competitions. I doubt if there is any other profession or trade which does so much without remuneration, except, perhaps, the medical profession, and they have the satisfaction of doing good to their fellow men and are not called upon to pay the hospital expenses. We brighten our wits and give the younger men a chance by competitions, but the promoters are the supposed gainers; so long as we offer so much for so little they naturally accept it. I think, however, that we should have the sympathy and help of promoters in any proposals to minimise the loss to the profession, if the regulations were reasonable ones, issued with the authority of the Institute, and as loyally supported by the profession as is the recognised scale of commission.

The remedy I have to suggest is that a *scale of the approximate value of payments for out-of-pocket expenses* should be adopted by the Institute (ranging from, say 1*l.* per cent. for a 1,000*l.* building to 1*s.* per cent. for a 850,000*l.* building), payable by promoters of all competitions, and made part of the contract between promoters and competitors, and that members of the Institute should be required not to compete unless such contract were entered into by the promoters.

I would apply this scale to the three classes of competitions named under Clause 5 of the "Regulations for Architectural Competitions" as follows:—

(*a*) By advertisement and unlimited, *half* the scale to each competitor sending in *bonâ-fide* design and complete drawings. (*b*) By advertisement and limited by selection, the *full* scale. (*c*) By personal invitation and limited, the *full* scale *plus* a specified sum for the design.

The sums payable by the promoters would be very small in proportion to the value of the designs obtained by them. For a 1,000*l.* building there could be obtained five designs for 5 per cent. extra to the usual commission; for a 10,000*l.* building, say at 4*s.* per cent., there could be obtained twenty-five designs for an extra 5 per cent., or ten designs for an extra 2 per cent.; and the London County Council could have had their 199 designs for 42,188*l.*, practically an extra 5 per cent., a large sum for them to pay, but over 20,000*l.* less than what the competitors probably did actually pay for out-of-pocket expenses.

The obligation to pay on such a scale would no doubt deter the promoters from indulging so frequently, readily, and often unnecessarily in the luxury of a competition; it would also tend to limit and to reduce the number of competitors.

The payments made by the promoters of each competition would be little and due by them, but the aggregate increased annual income to the profession would be very substantial and due to them.

Incidentally the limitation would cause more careful selection of competitors and improve the chances of those selected.

It has been suggested to me that these proposals might not commend themselves to promoters. But if supported by a regulation of the Institute, many promoters would accept the scale as a matter of course, and if any did not do so members of the Institute could then, without offence, decline to compete. At present I find I cannot decline without liability to give offence to some good friend or other who has brought my name to the notice of the promoters, and consequently sometimes I do compete under conditions which I feel to be humiliating. The Institute by improving its regulations is at the least helping us to help ourselves.

I am taking the unusual course of writing

a similar letter to the Editors of each of the professional papers, and have to ask for your indulgence for doing so, as I wish the whole profession to have the opportunity of considering my suggestions before the meeting of the Institute on February 7, when the "Regulations for Architectural Competitions" are to be considered.

EDWD. M. GIBBS.

*** We object, as a rule, to printing letters addressed simultaneously to other journals (whether professional or not); but under the circumstances and considering the importance of the subject to the whole profession, we are content to waive the objection in this instance.—ED.

THE DESIGNS FOR A SHAKSPEARE MEMORIAL THEATRE.

SIR,—Will you allow me the use of your columns to make a few comments upon the designs for a Shakspeare Memorial Theatre now on view in Mill-street?

Of the architecture, *per se*, perhaps I am not entitled to speak, but it is with the stage and its administrative parts that these few remarks deal.

In the premiated design the stage has a depth of 28 ft.—a somewhat inadequate space for a Shakspearian production; again, for a theatre which would probably be run upon repertoire lines a scene dock is a necessity, but neither this, a property-room, or a carpenter's shop is provided by this design. A scene-painting room is not shown, though, of course, it may be that a paint bridge would take its place, and no wardrobe-room nor rehearsal-room is provided. The scene slip is in the centre of the back wall of the stage, a position which would prohibit its being utilised during a performance. These are matters connected with the "back of the house" which are within the architect's province, and not matters of stage construction, which can be left to the stage carpenter; and they are matters of importance if the administration is to be carried out smoothly and with a minimum of confusion.

From the placing of dressing rooms beneath the back half of the stage, as is done in this design, I fancy trouble would arise with the Building Act, but, at any rate, that part of the stage would be rendered useless for any scenic effects requiring the use of bridges and sliders. The London County Council would have something to say about the large openings in the party walls between the upper dressing-room corridors and the stage; these are unnecessary, and a source of serious danger in case of fire. The dressing-rooms and the lavatory accommodation seem to me indifferent, and there is apparently no provision for supernumeraries such as a Shakspearian production may require; also, the line of sight from the outer seats of the circle is very bad.

In a modern theatre upon an open site I see no reason why all this accommodation should not be provided, and be of the best; the lack of it in what is otherwise a good design, shown in a set of excellent drawings, cannot fail to surprise the practical man.

With apologies for the length of these remarks,

STAGE MANAGER.

STATIONERS' HALL.

SIR,—On page 87 of your issue of January 22 I notice you remark that the wing of Stationers' Hall was built by "the *late* B. E Nightingale."

I beg to point out that although the then principal is deceased, the firm still continues under the same name. B. E. NIGHTINGALE.

LONDON AND DISTRICT BOROUGH COUNCILS.

Battersea.—High-street and Northcote-road are to be repaved with second-hand hardwood blocks, at an estimated cost of 376*l.* and 368*l.* respectively. Sumburgh-road is to be made up and paved. The following plans have been passed:—Mr. H. T. Bishop, on behalf of the British International Tarless Fuels Syndicate, workshops in Kirtling-street; Mr. J. N. Taylor, on behalf of the West London Extension Railway Company, alterations to waiting-rooms at railway station, High-street; Mr. D. Mabey, conversion of 227, Battersea Park-road, into cinematograph hall; Messrs. G. S. Valentin & W. C. Poole, on behalf of Electric Theatres Bureau, converting premises at corner of Plough-road and York-road into cinematograph hall.

Croydon.—The Rural District Council has passed plans as follows:—Mr. F. H. Claridge, six houses, Cowper-gardens, Beddington; Messrs. Moore & Neild, twelve houses, Grasmere-road, Purley, Coulsdon; Mr. J. R. Ditch, three houses and shops, London-road, Wallington; Mr. J. P. Oldaker, five houses, Roke Lodge-road, Coulsdon; Mr. C. W. Payne, five houses, Bencoombe-road, Coulsdon; Mr. P. L. Mitchell, seven cottages, Langdale-avenue, Mitcham; Selected Estates Company, twenty-four villas, Deal-road, Links Estate, Mitcham; Mr. J. Kendall, three new streets, Kendall-avenue South, Victoria-avenue, Norman-road, off Purley Oaks-road, Sanderstead; Mr. Weller, six houses, Milton-road, Beddington; Mr. E. W. Jacobs, four houses, Purley Oaks-road, Sanderstead; Messrs. W. & J. Bilham, sixteen pair houses, Clive-road, Mitcham; Mr. C. H. Cearn, eight houses, Red Devon-road, Coulsdon; Mr. W. Hyde, workingmen's club, Church-road, Mitcham.

Deptford.—The Borough Council is to undertake, on behalf of the London County Council, the footway and carriageway paving works in Queen's-road, after the authorised property widenings have been effected. Plans have been passed for Mr. J. H. Waterworth for the erection of one-story shops in front of Nos. 389-391, Queen's-road.

Ealing.—The Local Government Board has given the Council permission to borrow 2,675*l.* for the purchase of a small-pox hospital site at Greenford.

East Ham.—The Local Government Board has sanctioned the borrowing of 2,545*l.* for the extension of filters at the sewage works. The formal adjustments of accounts with the building contractors for the erection of the hospital extensions are as follows:—Mr. T. W. Moss, contract amount, 6,893*l.* 9s. 4d., adjustment, 6,704*l.* 13s. 8d.; Mr. Frank Hamlett, contract amount, 91*l.*, adjustment, 105*l.* 14s. The Works Committee have considered the Borough Engineer's plans for the erection of a public swimming-bath on the Town Hall site, and they have approved of the scheme for the provision of a swimming-bath, 120 ft. in length by 40 ft. in width, together with twelve slipper-baths and residence for the superintendent, at an estimated cost of 15,000*l.* Plans have been passed as follows:—Mr. A. T. Haines, ten houses, Welbeck-road; Messrs. Reid Brothers, ten houses, Kimberley-avenue; Mr. W. J. Maddison, alterations and additions to "Birchdale," Aldersbrook-road; Mr. T. Hillier Pyke, rink and cinematograph theatre, corner of Barking-road and Hartley-avenue; Mr. S. H. Leadbetter, twelve houses, Hubert-road; Mr. A. W. Pierce, ten houses, Welbeck-road; Mr. C. Manning, thirty-three houses, Ladysmith-avenue; Messrs. Burgoyne, Burbidges, & Co., additions to engine-house, chemical factory, High-street South. Mr. A. Sharpless has lodged plans for saw-mills and stables in Stevenage-road.

Finchley.—The following plans have been passed:—The Trustees of the Wesleyan Church, Ballard's-lane, additions to buildings, tower, and spire; Mr. A. J. Harris, six houses, Lancaster-road.

Greenwich.—Seventeen roads are to be repaired, at an estimated cost of 1,678*l.* In order to meet the objections of the Admiralty in regard to interference with the instruments at the Royal Observatory, the proposed tramways from Woolwich to Eltham are to be worked with complete insulation of all conductors on the overhead system, by using two overhead wires instead of two for each track. Plans have been passed for Mr. A. Roberts to build a warehouse at Messrs. Donald McCall's premises, Greenwich-road.

Hackney.—In connexion with the widening at the railway bridge in Sidney-road, paving works are to be carried out, at an estimated cost of 170*l.* Mr. D. Morris has lodged plans for the erection of buildings on the western side of Stamford-hill, northward from Amhurst-park, and on the northern side of Amhurst-park westward from Stamford-hill. Plans by Mr. W. Stewart for alterations at the Eagle beerhouse, 103, Wick-road, have been passed.

Hammersmith.—A suggestion by the Borough Surveyor to tar-spray the macadam and flint roads in the borough has been adopted by the Works Committee.

Hendon.—The Rural District Council have passed plans for Mr. A. J. Smith for four houses, Southfield-park, Pinner; also for Mr. C. L. Rummens, for a motor garage at Cannon Croft. Messrs. Waple & Co. have lodged plans for alterations to Stanmore Hall, Stanmore.

Holborn.—During the financial year, 1910-11, it is intended to spend 6,069*l.* for carriageway paving works, and 800*l.* for footway paving works; 150*l.* is also to be spent on sewage works. The largest of the paving works will be:—Bedford-row, tarred slag macadam, 1,175*l.*; portion of Bloomsbury-street, 2-in. rock asphalt, 1,093*l.*; portion of Farringdon-road, 2-in. rock asphalt, 1,100*l.*; portion of Bedford-square, tarred slag macadam, 737*l.*; Great Andrew-street, 2-in. rock asphalt, 566*l.* The Works Committee state that they have decided in favour of laying tarred macadam in subsidiary streets in consequence of the satisfactory results of experiments made. As experience has shown that there is considerable saving in the cost of repairs to the pavements, by adopting the system of payments for the same as required instead of continuing the maintenance contracts, the maintenance contracts which expire during the coming financial year are not to be renewed. It is proposed to construct an above-ground convenience in Brooke's Market, at an estimated cost of 250*l.*

Hornsey.—Southwood Lawn-road and the unmade portion of Highgate-avenue are to be made up. The following plans have been passed:—Mr. G. H. Paine, Moorgate-street, six houses, Lynmouth-road, Muswell Hill; Mr. Harry East, Redston-road, Hornsey, fourteen houses, Redston-road; Mr. G. E. Nield, 222, Strand, alterations and additions to "Denewood," Broadlands-road, Highgate; alterations and additions at rear of High School for Girls, Albany-road, Stroud Green; Messrs. Lander, Bedells, & Crompton, John-street, W.C., house, Stormont-road, Highgate; Mr. H. E. Fedrick, South Lodge, North-hill, three houses, North-hill, Highgate.

Islington.—In regard to the case of Kershaw *v.* Brooks, brought under the notice of the Borough Council by the Hampstead local authority, the Works Committee report as follows:—"We are informed that the Council and their predecessors have in the past found it necessary in a number of instances to take proceedings for the infringement of the by-laws in question, and that it has been their invariable practice in such cases to prosecute the builder as the person who gives the notices and carries out the work, except in cases where the builder has shown that the owner is really responsible, *e.g.*, where the owner has undertaken to deposit plans himself, or where he has positively refused to allow the builder to comply with the by-laws. That this was the correct course to adopt has never, so far as we know, been questioned until it was decided otherwise in the case under consideration. If the decision in Kershaw *v.* Brooks is to remain law, we are of opinion that considerable difficulty will be found to occur in enforcing these by-laws, first, because the owner of a property where drainage work is being carried out may not be known, and the builder may be unwilling to make known his name and address, and secondly, because in case of property let on a long lease, and possibly sublet on one or more shorter leases, complications will arise, and additional trouble and expense be entailed in deciding which of the several persons who possess an interest in the property is the 'owner' in default. There is the further point that in proceeding against the 'owner' some hardship may be inflicted in cases where the work has been entrusted to a builder whose business it is to know that the County Council's by-laws must be complied with, the owner probably having no knowledge of the procedure in connexion with the execution of drainage and sanitary work, or of the by-laws and technical details relating to such work. For these reasons we are of opinion that the London County Council should secure, if possible, such an amendment of the by-laws in question as will make the builder or contractor carrying out the work equally liable with the 'owner' for any failure to comply with their requirements." The London County Council is to be approached accordingly. Sewage works are to be carried out in Charles-street and Road-street, at a cost of 130*l.* and 240*l.* respectively. Electric mains are to be extended, at an estimated cost of 300*l.*

Lambeth.—Selected firms are to be invited to send in tenders and designs for the construction of the proposed underground convenience at Westow-hill. The estimated cost is 2,000*l.* The sum of 291*l.* is to be spent in carriageway repairs. The following plans have been passed:—Messrs. J. S. Quilter & Son, on behalf of Messrs. F. T. Wooding & Son, twelve houses at the junction of Leigham Court-road and Knollys-road; Messrs. Style & Winch, Ltd., two shops in front of 414 and 416 Coldharbour-lane.

Marylebone.—During the financial year to end March 31, 1911, paving works are to be carried out as follows:—Wood-paving renewals, 7,069*l.*; new asphalt works, 2,076*l.*; new tarmac works, 2,149*l.* The Surveyor is to prepare a specification of the work required in connexion with the Marylebone-road improvement, and to invite tenders for its execution.

Poplar.—Plans lodged by Messrs. Griggs & Son, for additions to Messrs. Waterlow's premises, 225, Old Ford-road, have been passed.

Stepney.—The tender of Messrs. Strachan & Henshaw, Ltd., at 4,040*l.*, for the coal-conveying plant required at the Limehouse generating-station, has been accepted. Messrs. F. Boreham & Son have been given permission to erect an addition to 659, Commercial-road, Ratcliffe, over a 9-in. pipe sewer at the rear of said premises.

West Ham.—The tender of Mr. H. C. Horswill, Forest Gate, has been accepted, at 10,097*l.*, for the extension of the West Silvertown School and the erection of a new boys' department. The following plans have been passed:—Mr. E. J. Jenner, shops, and alterations and additions to adapt premises, 127-131, Leytonstone-road, Stratford, for cinematograph exhibition; Co-operative Wholesale Society, Ltd., office and blacksmith's shop, Thames-road, Silvertown; Messrs. A. Lyle & Sons, Ltd., additions to sack-washing department, Plaistow Wharf, Victoria Docks. Mr. J. T. Cunningham has lodged plans for a milling-room and soap store at Ward-road, Stratford.

Willesden.—Héber-road is to be made up. Mr. F. G. Brummell is to make up Harlesden-gardens, the contract price being 617*l.*

Woolwich.—The Libraries Committee propose that the mission-room recently bought for library purposes at North Woolwich be adapted for the purpose of a branch library, at a cost of 500*l.* Plans have been passed for the London Flambo Fuel Company, Ltd., for Messrs. J. E. Whiter & Co., 13, Railway-approach, London Bridge, S.E., to build a coal-shed and briquette machine building (both of iron) on land belonging to the Gas Light and Coke Company, at Beckton. Plans have also been passed for Mr. L. Kayak, 3 and 4, Station-road, Belvedere, for the conversion of stables into laboratory, offices, and stores at Avery-hill Training College, Bexley-road, Eltham.

WESTMINSTER CITY COUNCIL.

At the fortnightly sitting of the Westminster City Council on Thursday last week, the following, amongst other matters, were dealt with:—

Renaming of Chapel-place.—It was resolved to ascertain the views of the occupiers in Chapel-place, Long-acre, as to renaming the street "Slingsby-street," after Sir Wm. Slingsby, who made Long-acre in 1616.

Tube Station at Oxford-circus.—Reporting on the Baker-street and Waterloo Railway Bill, which gives that company powers to construct a new station at Oxford-circus, and also a subway, the Highways Committee stated that there was a long length of subway to get from the actual platforms at the station to the lifts in Argyll-street, and the intention of the promoters appears to be to reduce the inconvenience caused through this arrangement by the provision of an "escalator," or moving staircase, which would extend from the north side of Oxford-street to the existing building at the head of the lifts at the corner of Oxford-street and Argyll-street. No details are given as to the method of construction of the subway in which the escalator will be placed, and it was desirable that some information should be given as regarded the materials, lighting, etc. —It was decided to petition against the Bill.

Rebuilding of Charing Cross and Victoria Stations of the Metropolitan District Railway Company.—The same Committee reported on the proposals of the Metropolitan District Railway Company to take land for alterations at their Charing Cross and Victoria stations. At Charing Cross it was proposed to take some 876 sq. ft. of land, including a portion of the subway, whilst at Victoria, in addition to certain land, the premises 195 and 197, Victoria-street, would be acquired.—The Council decided to petition against the Bill.

PROJECTED NEW BUILDINGS IN THE PROVINCES.

Abercromboi.—Cottage homes (1,460*l.*); Mr. D. Rees, builder, Merthyr.

Ammanford.—Court house; Carmarthenshire County Council.

Ancaster.—Alterations to church; Mr. W. Bond, architect, Grantham.

Aylesbury.—Depôt buildings, Cambridge-street; Surveyor to Urban District Council, Aylesbury.

Ayr.—Residence, Prestwick-road (1,500*l.*); Mr. J. S. Williamson, architect, Sandgate-street, Ayr. House, Belmont-avenue (1,300*l.*); Mr. J. W. Morton, architect, 9, Wellington-square, Ayr. Additions, Davidshill Hospital; Ayrshire County Council. Pavilion; Town Council, Ayr, N.B.

Bargoed.—School (600 places); Mr. D. Pugh Jones, architect, Charles-street, Cardiff.

Barking.—Proposed school, Lethieullier-road; architect, care of Education Committee, Barking. The Town Council has passed plans for six houses, Devon-road, for Mr. J. Graffy.

Barry.—Female training college; Mr. G. A. Phillips, Council Surveyor, Bridgend, Glam.

Belfast.—Additions to Presbyterian church, Clifton-street; Messrs. Young & McKenzie, architects, Belfast; Mr. W. Dowling, builder, Cromwell-road, Belfast.

Bicester.—Isolation hospital; Clerk to Town Council.

Bootle.—Willcox church; Mr. J. F. Doyle, architect, Harrington-street, Liverpool.

Bradbury.—Fifteen houses; Messrs. Clayton Brothers, Lyme-grove, Bradbury.

Bridgend.—School (400 places); Mr. D. Pugh Jones, architect, Charles-street, Cardiff.

Bridport.—Depôt buildings; Surveyor to Urban District Council, Bridport.

Carrington.—School (5,900*l.*); Mr. F. B. Lewis, architect, City Hall, Nottingham.

Chester.—School (5,255*l.*); Mr. Harrington, builder, Chester.

Church Bank.—School (7,000*l.*); Mr. G. Forrest, architect, Moot Hall, Newcastle.

Connel (Argyllshire).—Library (2,000*l.*); Mr. G. W. Brown, architect, Albany-street, Oban.

Darlington.—Secondary school (10,000*l.*); Mr. W. Rushworth, Architect, Shire Hall, Durham; Messrs. Blackett & Son, builders, Darlington.

Dawdon.—Warehouses, for the Ryhope and Silksworth Industrial Society.

Fairlee (Isle of Wight).—Hospital (5,960*l.*); Mr. T. Meeder, builder, Cowes.

Glasgow.—Extension to works of Sir Wm. Arrol & Co., Ltd. (5,500*l.*); plans by firm's own staff.

Goole.—Thirty houses; Mr. E. Jackson, builder, Goole. Twenty-four houses; Mr. T. Prentice, builder, Goole.

Gringley-on-the-Hill.—Restoration of St. Peter Church; the Vicar, Gringley-on-the-hill.

Haslingden.—School; Manager, St. Mary's R.C. Church.

Havant.—Rink; local company.

Hengoed.—Extension to Council offices (1,500*l.*); Mr. J. P. Jones, Council Offices, Hengoed.

Highton (Darlington). — Branch store (3,500*l.*); Mr. L. G. Ekins, Co-operative Offices, Newcastle.

Horsham (Sussex).—Rink, Hurst-road; local syndicate.

Hythe.—Rink, Prospect-road; local syndicate.

Inverarie, N.B.—Cookery centre; architect, Mr. G. Gray, 133, High-street, Inverarie.

Jarrow.—Swimming-baths; Messrs. Stephen Sherriff & Son, builders.

Littlehampton.—Rink, Church-street; local syndicate.

Liverpool.—Emporium, for Messrs. Lee & Son, Basnett-street; Messrs. J. Henshaw & Sons, builders, Chatham-street, Liverpool.

Maidenhead.—Rink; local syndicate.

March.—Workshops and engine-house, City-road; Mr. G. Brewin, March.

Nelson.—Club premises, Crowther-street; Secretary, Nelson Workmen's Institute.

Newcastle.—Extensions to parish hall, Atkinson-street; Mr. C. S. Errington, architect, Victoria-buildings, Grainger-street, Newcastle-on-Tyne.

Newport.—Buildings, for the Newport Girls Evening Home Society.

Northgate.—Additions to St. George's Church; the Vicar, Darlington.

Northumberland.—School, Haydon Bridge (2,000*l.*); Mr. Forrest, architect, Moot Hall, Newcastle.

Oakham.—Education offices, Station-road; Rutland County Council.

Palace Colliery.—School, for Bothwell School Board (6,000*l.*); Messrs. Bruce & Hay, architects, 261, West George-street, Glasgow.

Pelaw Leezes.—School for girls; Governors of St. Hilda's College, Durham.

Peterborough. — Extensions to Deacon's school; Mr. F. H. Townsend, architect, Cross-street, Peterborough.

Pontypridd.—Sixteen houses, Eglwysilan-road; Secretary, Tygwyn Building Club, Pontypridd.

Portsmouth. — House for tuberculosis diseases; Clerk to Guardians, Portsmouth.

Prestwich.—One hundred houses; Prestwich Colliery Company, Ltd.

Ribchester.—Extension to workhouse; the Guardians.

Ruislip-Northwood.—The Urban District Council has passed a plan, lodged by Mr. H. Neal, for six houses in Eastbury.

St. Boswell's.—Mission-hall; Vicar, Parish Church.

Shotton.—One hundred and fifty cottages; Horden Colliery Company, Ltd., Shotton.

Sidmouth.—Café and bakehouses (2,000*l.*); Mr. Sampson, architect, Station-road, Redruth.

South Elmsall.—Stores, for Pontefract Industrial Society (1,400*l.*); Messrs. Garside & Pennington, architects, Pontefract.

Springburn.—Extensions to store department of N.B. Locomotive Company, Ltd. (4,000*l.*); plans by firm's own staff.

Staines.—The Rural District Council has passed a plan, lodged by Messrs. Cogswell & Harrison, gun manufacturers, for workshop, Shooting Park, Stanwell.

Stamshaw.—Additions to girls' school; Messrs. H. Jones & Son, builders, Stamshaw.

Stanley.—Council offices; Mr. Wilson, architect, Coleshill-street, Sutton Coldfield; Mr. Southern, builder, Dipton.

Swansea.—Proposed additions to Dyfatty Council School; Mr. M. Hoskins, estate agent, Swansea Town Council. Fifteen houses, Plasmarl-terrace (2,092*l.*); Mr. A. J. Corborne, builder, Swindon. The Town Council has passed the following plans:—Four houses, Ernald-place, Mr. John Davies; alterations to Midland Café, Wind-street, for Messrs. R. E. Jones, Ltd.; extension of hall, St. Luke's Church, Cwmbwrla, for the Committee; offices, Gloucester-place, for Messrs. T. P. Richards, Turpin, & Co.; warehouse, etc., Strand, for the Superheated Units Company; five houses, Llangyfelach-road, Treboeth, for Mr. J. Williams.

Tacking Mill.—Wesleyan Sunday-school; the Trustees, Tacking Mill.

Tredegar Junction.—School, R.C. church; the Governors.

Wakefield.—School (7,000*l.*); Messrs. Watson, Son, & Ellison, architects, Barstow-square, Wakefield.

West Chislehurst.—Police-station; County Surveyor, Horsham.

Whitley Bay.—Theatre, etc. (10,000*l.*); Messrs. Cackett & Burns Dick, architects, Pilgrim-street, Newcastle; Messrs. S. Davidson & Miller, builders, Newcastle.

Whitstable.—Baptist Sunday-school; Messrs Amis & Ford, builders, Whitstable.

Willow Grove.—Twenty-six houses; Messrs. Garrick & Cundall, builders, Harrogate.

THE BUILDERS' FOREMEN'S ASSOCIATION:

Annual Dinner.

The sixteenth annual dinner of the Builders' Foremen's Association was held in the King's Hall, Holborn Restaurant, on Saturday last week, the chair being occupied by Mr. F. G. Minter. The company numbered over 300 members and friends, including Messrs. Ben Carter (Messrs. Stephens & Carter), T. Costigan (Secretary of the London Master Builders' Association), J. W. Sawyer (President of the Foremen's Association), F. G. Rice (President of London Master Builders' Association), Leonard Horner (Vice-President of London Master Builders' Association), F. W. Foster, O. Foster, G. Thrale Jell, A. W. Moore, F. A. Minter, L. G. H. Stanborough, W. Laidlaw Smith, J. C. Hill, R. A. Denell, B. C. Wotton, G. Johnson, W. Bloore, H. C. Lassam, G. Thomson (editor of the *Quarterly Journal* of the Association), M. Gass (Treasurer), A. Kind (Financial Secretary), and Benton Rees (Secretary).

The loyal toasts having been honoured,

The Chairman proposed the toast of "The Builders' Foremen's Association." He said that the Association had been in existence sixteen years, and had grown into a very useful society. Its objects were:—(1) To promote friendly and social intercourse between builders' foremen—(*a*) by meeting together on the last Saturday of each month, (*b*) by arranging an annual dinner and summer excursions and other social entertainments; (2) to promote the intellectual and general capabilities of the members—(*a*) by arranging lectures and discussions on matters of interest to the members in the discharge of their duties as foremen, (*b*) by arranging visits to works and buildings of such interest that will prove instructive to the members; (3) to assist members who are in want of employment by advertising in the trade papers and advising them of vacancies through the medium of the Secretary; (4) to assist unfortunate members by grants from the funds; (5) to guarantee a sum of 10*l.* to the nearest relative at the death of a member; (6) to establish a pension fund for aged members and the widows of deceased members. The annual dinner was the only occasion during the year when funds were asked for, and the appeal was chiefly for the purpose of establishing a pension fund, as, owing to the exigencies and fluctuations of the building trade, it was not always possible for a man to provide for the future. The pension fund was, and would be, a great boon to those who, owing to force of circumstances, had not been able to make provision for the future, and for this reason he appealed to all for assistance. They knew how essential it was to have a good foreman, and they knew how difficult it was to get the ideal man. It often rested with the general foreman to make or mar a job, and his position was not a sinecure, and he had to be an exceptional man to rise to every occasion when required. The foreman should be an early riser, hard-working, with more than ordinary intelligence, perfectly trustworthy, and very tactful; he must also be blessed with a good constitution to withstand outdoor work in all weathers and under all conditions. Also, he had not only to satisfy the employer and look after his interests, but

at the same time must please the architect and client, and in these times of fierce competition, when prices were down to zero and the builder was not at all certain of his profit at the end of the job, it required all his administrative powers in addition to bring the work out on the right side, and to get a fair day's work out of his men without any irritating consequences. The foreman had also to deal with and handle the various subcontractors, who were put in by the architects, and to dovetail these different trades and specialists in with his own work in order to avoid waste of time, and to complete in the time stipulated. To illustrate this he might say that he himself had recently completed a contract of about 45,000*l.*, which included something like 18,000*l.* worth of work for subcontractors, spread over nine or ten different firms, each one of which the general foreman had to keep in touch with, and to regulate to some extent, in addition to his various other duties; so it was evident that his position was not always an enviable one. As they looked to the foremen for the success of their contracts—and he was one of the mainstays of a very intricate business—he could not understand why the master builders of London had not supported the Association more liberally and given them more assistance in building it up. He hoped that in future years the Association would be generally recognised and more generously supported. On the other hand, the builders' merchants had stepped into the breach most liberally, and, notwithstanding bad times, had supported the Association most loyally. Speaking generally, the builders' foreman was a good sort, and deserved more than he got, and when he came face to face with bad times through the fortune of war and no fault of his own, it must be a great relief to have a Society like that to fall back upon for temporary assistance, or something in the nature of a pension, which was also intended to extend to his widow.

Mr. Sawyer, President, in reply, said that to have a good foreman in every sense of the word, reliable, experienced, possessing good methods of dealing with materials and men, good constructive knowledge combined with economy and care, must be quite a comfort to the builder. And it was no light thing for a foreman to feel that he had the esteem and confidence of his employer. They were trying, as an Association, to raise their ideals and increase their knowledge in various ways. In these days of change and new ideas they had to look out to keep abreast of the times. In the realisation an Association of this kind was a great factor. But they could not hold in association a body of men with common interests alone; those common interests must carry with them individual benefits. Perhaps the chief of those individual benefits was the pension fund, which had grown from its commencement in 1904 to the figure shown in their *Journal*. And this had been accomplished during years of great tribulation for the building trade. The members had suffered severely from the slackness of trade, and it was a matter almost of wonderment how so comparatively young a society had hung together so well. During the year they had invaded the sacred territory of the clerks of works, and four of the members had been acting as such, three of them being now so engaged. As an architect once said to him, it was only right and proper that when a foreman was getting on in years he should leave the pushing, active, worrying life for the less strenuous one of clerk of works. And, all other things being equal, who was so well fitted as the experienced general foreman for the position of clerk of works?

Mr. J. C. Hill then proposed the toast of "The Building Trades." As to the pension fund of the Association, he was glad to find that they had in hand something like 900*l.* He agreed with the Chairman that the Association did not get the assistance it should from master builders, but he was glad it was doing well in spite of that. He hoped the master builders would in the future do more for the Association, for builders owed a great deal to a good foreman. No job could be successfully carried on without a first-class foreman, and such a foreman was most difficult to find, for it was difficult to get the working man to consider his position beyond his own trade. The best builder's foreman, to his mind, was the man who served his apprenticeship at the bench, and who employed his spare time in getting that technical knowledge necessary to carry out a large contract, and to understand the management of men. It was one thing for a working man to put in extra time on a job, and another thing to go home and spend his spare hours in study. He believed in better education, for we were suffering from a want of technical education to-day. We should teach our boys to make bricks, for instance, and to repair machines, etc., rather than Latin; and our girls how to sew and cook rather than play the piano. That was what we had to do in order to keep our position in the front rank of the nations as we had always done. He though the building trades were suffering from a plethora of cheapness. Most building materials were too cheap, and he thought this desire for absolute cheapness was wrong, and that we should be better off if things were dearer. He thought the land clauses in the Finance Budget struck a severe blow at the building trade. They struck a great blow to the security of property, and he objected to one particular kind of property in which the wealth of the country was invested being specially taxed. He did not think that builders had sufficiently bestirred themselves in the matter, and he thought they should organise themselves in order to protect the industry.

Mr. Leonard Horner, in reply, said as to the depression in the trade, there had been a depression of years, but he thought it had done some good, for it had given time to think. The relations between the workmen and builders had never been so pleasant as they were now, and many firms had been saved a calamity owing to the devoted services of their foremen, workmen, and staff. The architects and quantity surveyors had been their friends, too, and those gentlemen were quite as anxious that the builders should reap a fair profit as that their work should be a success, and merchants, too, had been very good friends. The builder had only one enemy, and that was himself, when he offered to carry out work at such ridiculous prices that it was impossible almost to do it at a profit. The builder had huge risks and responsibilities, and surely he was entitled to a fair profit! We heard of "rings of builders," but, bad as they were, they were not so much to be deplored as these cheap and cutting prices. The method of carrying on the building trade was changing very much, and there had been introduced the specialist and the subcontractor. But they did not want too many specialists, and builders were quite competent to carry out many of the things now done by the subcontractor, and to carry them out to the satisfaction of the architect and the client.

Mr. F. G. Rice then proposed the toast of "Architects and Surveyors." In the course of his remarks he said that it had been a pleasure to them to read that the President of the Royal Institute of British Architects had had his work recognised by being made an Associate of the Royal Academy. He thought that the Government of the day, when advising His Majesty as to the birthday honours, should recognise in a more liberal spirit the excellent work done by architects. No one could walk through our cities without feeling inspired by the noble works which had been designed by them.

Mr. A. W. Moore (Messrs. Hubbard & Moore), in response, said it was important that builders' foremen should be well equipped in technical knowledge.

The concluding toasts were "The Visitors," proposed by Mr. G. Thomson and acknowledged by Mr. Costigan, and "The Chairman," proposed by Mr. Ben Carter. The Chairman suitably replied, and the proceedings terminated.

INFRINGEMENT OF BY-LAWS.

We have already reported that the London County Council have circulated a letter to the London borough councils directing attention to the case of Kershaw *v.* Brookes, in which the Divisional Court upheld the decision of a Police Court magistrate to the effect that the owner of premises and not the builder or contractor employed by him is the person to be summoned for infringement of the by-laws made by the London County Council pursuant to sect. 202 of the Metropolis Management Act, 1855, and asking whether, having regard to the view expressed by the Local Government Board in correspondence with them that the effect of the decision is to show that the applicability of the by-laws to a particular person must depend upon the facts, the Islington Borough Council are of opinion it is desirable the by-laws in question should be so amended as to make the builder or contractor liable.

The Islington Borough Council referred this question to its Works Committee, which has drawn up the subjoined report, which, it will be seen, seeks to make builders equally liable with owners:—

"We are informed that the Council and their predecessors have in the past found it necessary in a number of instances to take proceedings for the infringement of the by-laws in question, and that it has been their invariable practice in such cases to prosecute the builder as the person who gives the notice and carries out the work, except in cases where the builder has shown that the owner is really responsible, *e.g.*, where the owner has undertaken to deposit plans himself, or where he has positively refused to allow the builder to comply with the by-laws. That this was the correct course to adopt has never, so far as we know, been questioned until it was decided otherwise in the case under consideration. If the decision in Kershaw *v.* Brookes is to remain law we are of opinion that considerable difficulty will be found to occur in enforcing these by-laws, first, because the owner of a property where drainage work is being carried out may not be known and the builder may be unwilling to make known his name and address, and, secondly, because in the case of property let on a long lease and possibly sublet on one or more shorter leases, complications will arise and additional trouble and expense be entailed in deciding which of the several persons who possess an interest in the property is the 'owner' in default. There is the further point that in proceeding against the 'owner' some hardship may be inflicted in cases where the work has been entrusted to a builder whose business it is to know that the County Council's by-laws must be complied with, the owner probably having no knowledge of the procedure in connexion with the execution of drainage and sanitary work, or of the by-laws and technical details relating to such work.

For these reasons we are of opinion that the London County Council should secure, if possible, such an amendment of the by-laws in question as will make the builder or contractor carrying out the work equally liable with the 'owner' for any failure to comply with these requirements."

General Building News.

CHURCH, SUTTON-IN-ASHFIELD.

The new church of St. Michael and All Angels, at Sutton-in-Ashfield, was consecrated on Saturday last week. The church provides seating accommodation for 650, and has cost 4,500*l.* In 1905 plans were prepared by Mr. Louis Ambler, architect, of London, for the permanent completion of the building. The present work consists of a nave about 80 ft. long, 30 ft. wide, and 50 ft. high to the ridge, separated by arcades of five bays on the north side, terminating at the west end. The external walls are of Bulwell stone, with Weldon stone dressings, and lined with brick, which is plastered, the internal arches and columns being of Ancaster stone. The roof is of fir, covered with red tiles. When completed the tower and spire at the north-west angle near the main road will be the principal feature of the exterior.

CHURCH REBUILDING, KILPATRICK.

The reconstruction of New Kilpatrick parish church, Bearsden, which was commenced in February of last year, has been practically completed. The main features of the scheme are an increase in and reconstruction of the seating accommodation, the addition of a new chancel on the south, the extension of the nave on the north, the removal of the old circular gallery and the substitution of galleries over both transepts and the nave. The church is now cruciform in plan, and with the alterations which have been effected provides accommodation for a congregation of 1,250. The renovations also include the addition of a new porch at the north side and a new vestry and session-house. The scheme of reconstruction has been carried out to plans by Mr. Henry Higgins, Glasgow.

WELSH CONGREGATIONAL CHAPEL, YNYSDDU.

At Ynysddu recently a new Welsh Congregational chapel was opened. The building comprises basement, ground floor, and upper floor. The ground floor has vestibule, cloakroom and lavatory, and chapel hall, which will accommodate a mixed audience of 300. The floor is laid with pitch-pine blocks, and the ceiling is panelled. The upper floor has a retiring-room containing lavatory, etc., three large classrooms, and church parlour. The building is heated throughout on the high-pressure system by Messrs. Hampton & Co., Cardiff. The seating is of best pitch-pine, supplied by Messrs. Williams & Sons, New Tredegar. The dressings of the front elevation are in Forest of Dean carved work, and the side elevations in best buff bricks. The building is part of a larger scheme. Mr. Thomas James, contractor, Cwmfelinfach, is the builder, and Mr. D. W. Price, New Tredegar, the architect.

NEW MANSELTON CHAPEL, SWANSEA.

The new Baptist chapel at Manselton, Swansea, was recently opened by Sir Alfred Thomas. It is designed to accommodate 650, having a gallery on three sides, and behind the chapel is a school, to seat 300; a part of the floor space has been so arranged that it can be divided into classrooms. In addition, the school contains a church parlour to seat about

sixty, a large infants' classroom, minister's-room, kitchen, heating chamber, etc. The building is of local stone, faced on the outside with blue Welsh Pennant stone, with box ground Bath stone dressings. The total cost of the buildings is about 3,000*l*. They have been erected by Messrs. E. Turner & Sons, Cardiff, from the designs and under the superintendence of Mr. W. Beddoe Rees, Cardiff.

SECONDARY SCHOOL, COATBRIDGE.

On the 10th inst. the new Coatbridge Higher Grade School and Junior Students' Centre was opened by Dr. A. R. Andrew, H.M. Senior Inspector of Schools for the Western District. The school has been erected at the corner of Albert-street and Dunbeth-road from plans prepared by Messrs. H. & D. Barclay, Glasgow, at an estimated cost of 21,000*l*. The main building fronts Albert-street, and a separate building, in which are housed the gymnasium, manual workshop, cookery, and dressmaking classes, has a frontage to Colt-terrace. On the ground floor there are two physical laboratories and six classrooms for forty each, head master's room, teachers' common-room, and male teachers' room. On the upper floor there are a chemical laboratory, two art-rooms, six classrooms for thirty each, and a female teachers' room.

COUNCIL SCHOOLS, WILLOWTOWN, EBBW VALE.

The Willowtown new schools, Ebbw Vale, have now been completed and opened. The schools, which are in two blocks, consist of mixed and infants' departments. The exterior is in Pennant dressed stone, with brick quoins, and Forest of Dean stone dressing. There are six classrooms in each department, accommodating fifty and sixty children respectively. The total accommodation of the mixed department is for 340, and the infants' department is for 320, with further provision for 140, should the rooms, now intended to be used as a manual and cookery centre, be required for ordinary teaching purposes, so that the total accommodation will therefore be for 800. Ventilation is on the system of fresh-air inlets and copper-domed ventilators, in addition to which the windows open at the top and bottom on patent gearings. The floors are of rift-sawn blocks, laid by Messrs. Nicholson & Sons, Leeds, and the corridors are of rock asphalt, laid by Messrs. Wainwright, Shepton Mallet. The furniture is in keeping with the building, and consists of oak to special specifications and designs of the architect, and supplied by Messrs. Bennett & Co., London and Glasgow. The schools were erected by Messrs. Williams & Sons, New Tredegar, according to plans prepared by Mr. Henry Waters, Ebbw Vale and Beaufort, Architect to the Ebbw Vale Education Authority. The work has cost approximately about 16,000*l*.

COUNCIL SCHOOL, SEFTON PARK, ASHLEY HILL.

A new Council school has been opened at Sefton Park. It was built by Messrs. G. Humphreys & Sons from the competitive designs of Messrs. W. V. & A. R. Gough. The school is arranged in two departments, each containing ten classrooms and a central hall. The senior department accommodates 500 boys and girls, aged from about 10 to 14 years, and the junior department 500 boys and girls, aged from 5 to 9 or 10 years. A centre for the teaching of cookery, laundry work, and household management, and a caretaker's house have been provided upon the site.

SUNDAY-SCHOOLS, DERBY.

The opening has just taken place of St. Augustine's new Sunday-schools, Derby. At present only half of the scheme has been carried out, the erection of the parish hall and boys' school being left to a future period. In the school erected accommodation is provided for girls and infants, whilst provision is also made for adult classes of both sexes. A future continuation of the building will accommodate 314 boys, and will also be used as a parish hall to hold, with the gallery, about 650 people. The girls' school will be used occasionally as a parish hall for the present, and when seated for this purpose it will accommodate about 550. Electric light is used all over the buildings, and the rooms are all heated by low-pressure hot water. The contract for the first section of the building, to contain 352 girls and 300 infants, was let to Mr. Henry Chattle, of Derby. The architects are Mr. J. Reginald Naylor and Mr. G. Hanson Sale, of Derby.

COUNCIL SCHOOL, WEST EALING.

The new "Lammas" Council school at West Ealing was recently opened. The premises afford accommodation for 1,218 scholars, 398 boys, 400 girls, and 420 infants, and have been built by Messrs. Spencer, Santo, & Co., Ltd., of Kensington. The senior block is a one-storied building, having a frontage to Cranmer-avenue, the boys' department being at the west end, and the girls' at the east. The infants' department is a separate building, to the south of the senior block. The majority of the classrooms have a southern aspect. The heating of the senior and infants' blocks is effected by two separate systems of low-pressure hot-water installations. In addition to this, open fireplaces have been provided in all the infants' classrooms. Each department has two distinct entrances and two sets of cloakrooms. The playgrounds have been tar-paved, and a covered shelter has been provided in each. Single centres for cookery and laundry work have been built over the covered playsheds in the girls' and infants' playgrounds respectively. A double centre (that is, for forty scholars) has been provided in a single-storied building for handicraft, at the west end of the boys' playground. This centre has been designed to face north, and has a "northern light" roof. The buildings throughout are lighted with electric light. Schoolkeeper's quarters have been provided in a separate building. The contract price, including the three special subjects centres, amounted to 15,969*l*., but this does not include the heating, lighting, and tar-paving of playgrounds. Mr. Charles Jones, M.Inst.C.E., was responsible for the plans, and Mr. W. R. Hicks, Deputy Borough Surveyor, assisted in the supervision of the work.

NEW COUNCIL SCHOOLS IN SHROPSHIRE.

The Education Authority of the County of Salop have accepted the tender of Mr. Carver, Wellington, of 2,279*l*. 17s., for the erection of Wombridge Council Schools. The Committee have appointed Messrs. Appleyard & Quiggin, of Liverpool, architects for the Oswestry Girls' Secondary School; Messrs. Shayler, of Shrewsbury, for Wellington Secondary School; and Mr. J. Holt, of Manchester, for Whitchurch Girls' School.

WORKING MEN'S CLUB, GILSTON AND EASTWICK.

Mr. Arthur Salvin Bowlby, of Gilston Park, has erected a building which is to be known as the Gilston and Eastwick Working Men's Club. The actual work of erection has been carried on by men employed on the estate, under the superintendence of Mr. E. D. Brieant (steward), and from plans prepared by Mr. F. J. Coverdale, the estate agent. It has been built over a disused gravel pit at the entrance to the village, a concrete raft of reinforced cement interlaced with steel girders being placed over the top and securing a sure foundation. In the matter of the accommodation provided it consists of a large room 35 ft. by 20 ft., a reading-room and a small library and cloakroom, these, 6 ft. by 4 ft., being on either side of the main entrance.

FIRE-STATION, FAREHAM.

A scheme for providing a fire brigade station for Fareham, and in connexion with which public conveniences are to be constructed, was the subject of a recent Local Government Board inquiry. The District Council had approved the proposal, and their application to the Local Government Board was to borrow 2,000*l*. for the necessary works. The Inspector conducting the inquiry at the Council offices was Mr. W. O. E. Meade-King, M.Inst.C.E. Mr. W. Butler, Surveyor, gave the particulars of the scheme, and said that the actual fire-station would be 42 ft. long by 25 ft. 9 in. wide, and there would be ample accommodation for all the appliances, and a drill-ground provided at the back. There would be caretaker's quarters fitted up, in the type of a good workman's cottage. The lavatories would be well screened on either side of the main entrance. The buildings would be lighted by electricity.

BUILDINGS IN ABERDEEN.

The Plans Committee of the Town Council report the approval of plans of the following buildings, viz.:—Alterations in connexion with business premises on the east side of Loch-street, for the Northern Co-operative Company, Ltd., per Messrs. Brown & Watt, architects; addition at the rear of premises No. 415, Union-street, for Messrs. William Cay & Sons, per Messrs. Brown & Watt, architects; four dwelling-houses on the south side of Westburn-road, for Mr. James King, builder, per Messrs. W. Henderson & Son, architects; alterations in connexion with the Palace Theatre, Bridge-place, for the United Counties Theatres, Ltd., per Mr. W. E. Bickers, architect, Bradford, and Mr. John Rust, architect; dwelling-house on the north side of an un-named street running westwards from Clifton-road to the south of the entrance to Hilton House, for Mr. Joseph Shirras, jun., builder. The Committee had also before them plan of proposed alterations on the building in Guild-street, formerly known as Her Majesty's Theatre, for the Tivoli (Aberdeen), Ltd., per Messrs. Frank Matcham & Co., architects, London. From the Burgh Surveyor's report it appeared that it was intended to make extensive internal alterations on the building, for the purpose of converting it into a music-hall; that when the alterations were carried out the building would be greatly improved, and would provide accommodation for 1,148 persons. The Committee resolved to recommend that the Council should sanction the plan.

PUMP-ROOM, MATLOCK BATH.

A new pump-room is being built at Matlock Bath. The building will consist of a recreation-room, museum, cloakrooms and lavatories, kitchen, and storerooms on the ground floor, a concert-room with stage, artists' rooms, reading and refreshment rooms, cloakrooms and lavatories, and storerooms on the first floor, and caretaker's and other rooms over. The design has been prepared by Mr. J. Nuttall, architect, of Matlock, and the contract has been entrusted to Messrs. Ford & Sons, of Derby.

SANATORIUM, BURY.

The Bury St. Edmunds and West Suffolk Sanatorium has now been opened for the reception of consumptives. The building has been erected of corrugated iron, lined with sheet felt at the back. The wards, bath-rooms, corridors, etc., are lined with a patent asbestos material, impervious to water, and is also fireproof. The building is lined throughout with match-boarding. There are two wards, each 30 ft. by 12 ft., and accommodation for the staff. The contractors were Messrs. Spencer, Santo, & Co., of London and Ipswich. Messrs. Hinnels & Son, of Bury St. Edmunds, were responsible for the drainage and the foundations, which are of brick. The building itself was supplied by Messrs. Humphreys, of Knightsbridge. Mr. W. D. Harding, Borough Surveyor, supervised the erection of the building.

Sanitary and Engineering News.

ABERDEEN WATER SUPPLY.

There has been issued a Provisional Order by the Aberdeen Corporation to enable them to bring in a further supply of water to the city. The new supply is from the River Avon near its source in the Cairgorm range of mountains. Power is sought to construct an impounding reservoir, to be called the "Avon Reservoir," situated in the parish of Kirkmichael, to be formed by means of a dam or embankment across the River Avon, a tributary of the Spey. From the reservoir the water will be carried in an aqueduct by the parishes of Strathdon, Logie-Coldstone, Tarland, Coull, Lumphanan, Tough, and Kincardine O'Neil. At the last-named place there is to be a tank, called "The Redstones Tank." Thence the aqueduct is continued by Midmar to Echt, where there is to be another tank—"The Barmekin Tank." From it the aqueduct is taken by the parishes of Echt and Skene to Peterculter, where a service reservoir will be constructed. Thence the aqueduct will be carried to the existing Slope-field Reservoir, in the same parish, and from there will be continued to the present Manno-field Reservoir, in a western suburb of the city. Other necessary works, such as wash-out pipes, etc., will be constructed *en route*. It is provided that the Corporation may take water from the Avon up to 20,000,000 gallons per day, and until the completion of the Avon Reservoir they may take, by means of the other works authorised by the order, 10,000,000 gallons a day. The total cost is put at 1,396,000*l*.

TYNE NORTH PIER.

Commenced in 1855 and not finally completed until 1895, the two piers at the mouth of the River Tyne withstood the violent seas which prevail on the north-east coast until 1893-4, when certain foundations of the north pier were found to have been disturbed. From that date until 1897, when a serious breach was made, an incessant fight has been waged with the sea, the repairs effected during each summer being rendered useless by the storms of the succeeding winter. Finally it was decided to carry the foundations down to solid rock, and to build a new portion 750 ft. long under shelter of the existing work, instead of trying to close the breach of 300 ft. by building on the original site. In describing the undertaking in question to the Institution of Civil Engineers, Mr. J. C. Barling pointed out last week that the alternative mentioned involved no risk of an unsightly job owing to the curved plan of the old structure. The new pier consists of concrete blocks faced with granite, both these and the hearting being composed of 1:6 Portland cement concrete. A new lighthouse has been built on the roundhead,

and a tunnel constructed for the protection of attendants passing between the lighthouse and the shore. After completion of these works that portion of the old pier outside the new length was demolished down to low-water level, and as increasing signs of movement were found in parts of the structure shoreward of the new work, further operations were undertaken to make everything sound. It is stated that the movement was due solely to the expansion incident upon the decomposition of lime used in the original masonry.

Miscellaneous.

PROFESSIONAL AND BUSINESS ANNOUNCEMENT.

Mr. R. A. Briggs, architect, of Amberley House, 12, Norfolk-street, Strand, has taken into partnership Mr. Harry Le C. Browning, who was formerly a pupil of his. The firm will be carried on as "Messrs. R. A. Briggs & Browning" at the same address as hitherto.

ROSCOFF CHAPEL, BRITTANY.

Mr. Charles J. Guthrie, of Edinburgh, has published a letter respecting the condition of the little granite chapel at Roscoff, in Brittany. Locally the chapel is sometimes called by the name of the Scottish Saint Ninian, but more often La Chapelle de Marie Stuart, and is a source of great interest both to British and French visitors, from the tradition that it was built to commemorate Mary's safe landing at Roscoff and her escape from the ships of her grand-uncle, Henry VIII. The late Marquis of Bute saved the building from removal, and effected certain repairs on it. Thereafter it fell into a sad state of neglect, and in 1907 was used externally as an advertising stance and internally as a wood store. Mr. Guthrie succeeded, with the help of the readers of the *Scotsman* and the co-operation of the Secretary of the Franco-Scottish Society, in collecting the sum required to put the building into a creditable condition, and to ensure that it will last for many years to come. The walls have been cemented on the top and thoroughly pointed; the tracery in the east window has been repaired, and the south window tracery renewed; new doors have been put in the west side and on the south side, along the street known as La Venelle. The Town Council have undertaken to look after the building in future, and it is possible that, through the influence of the Franco-Scottish Society, it may yet be put on the list of national monuments.

GAS PROGRESS.

Material progress was made during the past year in the gas industry. More economical methods of carbonising coal have been discovered and generally adopted, and the number of companies which have entered into co-partnership agreements with their officers and workmen has been considerably increased. In some localities the output of gas during the hours of darkness has remained almost stationary, owing to the general use of more economical burners and the competition of electricity, but in most cases so much additional gas has been sold during the hours of daylight that a satisfactory increase in the total output for the year has been recorded. In the first half of the year the industry was to some extent adversely influenced by the depression experienced by most of the trades and industries of the country, but during the second half it felt the influence of the general recovery. The demand for gas fires and stoves during the last three months has been extraordinarily large, and has kept most of the factories where such appliances are made working to their utmost capacity. With the opening of the New Year the West Ham Gas Company ceased to exist, owing to its absorption by the Gas Light and Coke Company.

SCHOOLS IN SPAIN.

The *Gaceta de Madrid* of December 6 contains a decree authorising the Minister of Public Instruction to co-operate with the municipal authorities of Madrid with the object of arranging for the construction of schools which shall combine all the best features, both scholastic and hygienic, of the educational systems in vogue in the most important European capitals. For this purpose, the Government will include in the budget for the Department of Public Instruction a yearly sum of 1,000,000 pesetas (about 36,000*l.*) for the ten next following financial years. The above scheme, it is stated, is the first step towards a general reform and extension of educational facilities throughout Spain.—*Board of Trade Journal.*

QUINQUENNIAL VALUATION, CITY OF LONDON.

The Overseers' Committee of the Corporation have made a scheme for the employment of Mr. F. C. Ryde upon the forthcoming valuation of certain special properties, at an inclusive fee of 500*l.*, and of five other surveyors, at a retaining fee of 100 guineas each, with an additional inclusive fee, to be fixed hereafter, in respect of such properties as may be referred to them. The agreed fees will cover all charges, inclusively of out-of-pocket expenses, plans, written valuations, attendances, etc.

FITZWILLIAM MUSEUM, CAMBRIDGE.

The death is announced of Mr. H. A. Chapman, the principal assistant, who had been associated with the museum during thirty years past. His services were recognised by the University, which conferred upon him the honorary degree of M.A. in 1906. Mr. Chapman was the author of the "Handbook to the Antiquities in the Fitzwilliam Museum," and assisted in the compiling of many of the catalogues.

HOLY TRINITY CHURCH, CHELSEA.

At a sitting of the Consistory Court on January 13 Dr. Tristram, K.C., Chancellor of the Diocese of London, agreed to grant a faculty for the erection of a reredos in Holy Trinity Church, Sloane-street, which will be presented by an anonymous donor at a cost of some 2,000*l.* The design of the reredos, prepared by Mr. John Tweed, embraces a representation of the Crucifixion, with figures of the Virgin and Child, and St. John, in the right and left panels, and symbolical groups below. The composition, to be sculptured in marble, will rise to a height of about 8 ft. above the altar. The building of the church, after designs by J. D. Sedding, was begun in 1888 upon the site of one erected in 1828-9, whereof James Savage was the architect. Sir Edward Burne-Jones, Mr. F. W. Pomeroy, Mr. C. Whall, Mr. L. Davis, and Mr. H. Wilson have contributed to the decoration and adornment of Sedding's church, which is illustrated in our numbers of October 6, 1888; October 12, 1889; and January 4 and June 21, 1890.

SECOND INTERNATIONAL ROAD CONGRESS, BRUSSELS, 1910.

At the first International Road Congress, held in October, 1908, in Paris, the following resolutions were passed:—

1. A permanent International Society for Road Congresses to be formed, which aims at encouraging the progress made in the construction, upkeep, and use of roads, and at ensuring the development of the work done by Congresses in the future.
2. The Society to consist of (*a*) representatives of governments and corporations of all nations; (*b*) of private members.
3. The head of the society to consist of an International Standing Committee, which provisionally is to be formed of the presidents and vice-presidents of the sections of the first International Road Congress.
4. This Standing Committee to be directed by a Standing Board located in Paris. Each nation to be represented on this Board by one or two members of the Standing Committee. The subjects raised by this Board to be considered and investigated by a Business Committee located in Paris, and composed of three members:—M. Lethier, Inspector-General of roads and bridges, President; M. Bailif, President of the Touring Club of France, Vice-President; and M. Mahieu, Engineer for roads and bridges, General Secretary.
5. The function of the International Standing Committee is to draw up the Statutes of the International Permanent Society of Road Congresses and the immediate promulgation of the same.
6. The International Standing Committee to arrange for the next Road Congress.
7. The International Standing Committee is charged to examine the question as to whether it would not be practical to collect the evidence of trials made in various countries, to encourage further experiments with tar and other materials in order to determine the conditions under which these materials can be used.

The date specified for the second congress, which is to be held in Brussels, is August 1-15, 1910. In connexion with it an exhibition of all matters relating to road-making will be held on the site of the World's Exhibition, Brussels. The languages chosen for all transactions are French, English, and German. Details of proposed arrangements to be obtained from the Secretary of the Congress, 38, Rue de Louvain, Brussels.

NINTH INTERNATIONAL HOUSING CONGRESS.

From May 30 to June 2, 1910, the ninth International Housing Congress will be held in Vienna. The important questions raised by the housing problem are as common to all countries as is the lack of accommodation itself. The Housing Congress deals with the means for abating this evil, and points out ways in which the State, the district, and the individual can provide healthy, better, and cheaper dwellings. Four out of a number of proposed questions have been selected for discussion at the coming Congress:—

1. Parochial housing scheme.
2. Credit for co-operative building.
3. Cottages or blocks.
4. Reducing building expenses.

Leading experts of all civilised countries have been invited to report on the questions. In connexion with the Congress it is proposed to open an exhibition of plans and models of standard cottages built at home and abroad. Particulars to be obtained from the Congress Bureau, Stubenring 8, Vienna. Members' subscriptions fixed at 20 kronen. Single tickets for members' relatives 10 kronen. Representatives of co-operative building societies and workmen's organisations pay half the member's subscription. Persons interested in the proceedings but unable to attend can, on payment of 12 kronen, receive all printed matter referring to the Congress (reports, general reports, and protocolls).

CHURCH BUILDING SOCIETY.

The Incorporated Society for Promoting the Enlargement, Building, and Repairing of Churches and Chapels held its usual monthly meeting on the 20th inst. at the Society's House, 7, Dean's-yard, Westminster Abbey, S.W., the Rev. Canon C. F. Norman in the chair. Before proceeding to the usual business allusion was made to the death of Mr. Joseph Monday, Secretary of the Society. Mr. Monday had rendered most valuable service to the Society for upwards of forty years, and was appointed Secretary in 1908. Grants of money were made in aid of the following objects, viz.:—Building new churches at Ewood, St. Bartholomew, near Blackburn, 100*l.*; Gorse Hill, St. Peter, Manchester, 110*l.*; Sneinton, St. Christopher, near Nottingham, 50*l.*; Cricklewood, St. Michael, Middlesex, 150*l.*; Dartford, Christ Church, Kent, 150*l.*; Earby, All Saints, near Leeds, 50*l.*; Gorton, St. Philip, near Manchester, 90*l.*; Newton Heath, St. Wilfrid, (Rossall School Mission), near Manchester, 140*l.*; Pendleton, St. Ambrose, near Manchester, 130*l.*; and Sutton-in-Ashfield, St. Michael and All Angels, Notts, 90*l.*; and towards enlarging or otherwise improving the accommodation in the churches at Abergavenny, Holy Trinity, Mon., 40*l.*; Bardsey-cum-Rigton, All Hallows, near Leeds, 30*l.*; Hope Bagot, St. John the Baptist, Salop, 15*l.*; Ilkeston, St. Mary, Derbyshire, 30*l.*; Little Fransham, St. Mary, Norfolk, 15*l.*; Low Moor, St. Mark, Yorks, 30*l.*; Tibshelf, St. John the Baptist, Derbyshire, 25*l.*; and Cwm, St. Paul, Mon., 75*l.* A grant of 25*l.* was also made from the Special Mission Fund towards building a mission church at Haslingden Grane, Lancs. The following grants were also paid for works completed:—Chipping Warden, St. Peter and St. Paul, Oxon, 15*l.*; Chandler's Ford, St. Boniface, Hants, 100*l.*; Wimbledon, St. Matthew, Surrey, 140*l.*; Summertown, St. Michael and All Angels, Oxford, 220*l.*; Great Oakley, All Saints, near Harwich, 25*l.*; Plumstead, St. Paul, Kent, 100*l.*; Bradeley, All Saints, Staffs, 30*l.*; North Perrott, St. Martin, Som., 30*l.*; Chillington, St. James, Som., 20*l.*; Bournemouth, St. Alban, 250*l.*; Nantymoel, St. Paul, Glam., 50*l.*; Spital, St. Leonard, Chesterfield, 20*l.*; and Gorton, St. Mark, near Manchester, 50*l.* In addition to this the sum of 236*l.* was paid towards the repairs of twenty-one churches from trust funds held by the Society.

CONSISTORY COURT OF LONDON.

At a sitting of the Court in St. Paul's on January 20, Dr. Tristram, K.C., Chancellor of the Diocese, granted faculties in respect of Laleham parish church, near Staines, and of St. Michael's, Pimlico. In the latter case the vicar and wardens petitioned for authority to replace the stone and plaster reredos with one of alabaster, and to carry out a general rearrangement of the interior, with reflooring of the chancel in marble, and decoration of the chancel walls, at a computed cost of 1,500*l.*—the alterations constituting a memorial to the late Canon Fleming, who was vicar of the parish for thirty-four years. St. Michael's was built in Chester-square in 1843-4, for 1,600 sittings, after T. Cundy's designs, in the Decorated Gothic style. The chancel was lengthened thirty years afterwards. For All Saints, Laleham, the faculty relates to the erection of a chancel screen, the removal of the galleries, the placing of the organ in the Earl of Lucan's chapel, and the completion of the peal of six bells. The fabric and the roof are also in need of repair. The church has a nave of three bays, and a north aisle opening into a chapel on that side of the chancel, the arcade is carried upon two massive round Norman pillars with responds, and there are fragments of coæval mouldings inserted in the south wall. The Lucan chapel is of good early XVIth century brick masonry, with square-headed north and east windows, whereof the moulded bricks were originally covered with white plaster, in imitation of stonework. The Norman arcade, which opened into the south aisle, is now built in. The low, ivy-mantled brick tower was built at the west end of the north aisle in 1730. A memorial tablet

in the church commemorates Dr. Arnold, who before he went to Rugby lived in a house on the site of the present vicarage; in the churchyard is his son Matthew Arnold's grave.

THE NEW PARLIAMENT.

Amongst the newly-elected members are Sir William A. Gelder (North Lindsey, Lincs.), F.R.I.B.A., F.S.I., of Hull, whereof he was Mayor 1899-1903, and is a leading citizen; Mr. John Tudor Walters (Sheffield, Brightside), an architect and surveyor, practising in the town, who, as member of the Leicester Town Council, carried out the scheme of municipal housing there; Sir William Henry Dunn (Southwark, West), auctioneer and surveyor, a Fellow of the Surveyors' Institution, Alderman of the City of London, and Sheriff in 1906-7; Mr. Robert Boyton (East Marylebone), of the firm of Messrs. Elliott, Son, & Boyton, estate agents and auctioneers, who was President of the Auctioneers' Institute in 1905-6, and formerly President of the Estate Agents' Institute, and is a member for his division of the London County Council; Sir John Rolleston (East Hertfordshire), President of the Surveyors' Institution, 1901, and a member of Parliament for Leicester, 1900-6—he was knighted in 1897; Lord Balcarres (Chorley), eldest son of the Earl of Crawford, a Trustee of the National Portrait Gallery, Vice-Chairman of the National Trust, and Hon. Secretary to the Society for the Protection of Ancient Buildings; Mr. Henry Vivian (Birkenhead), carpenter and joiner, Secretary of the Labour Co-partnership Association, and Chairman of Co-partnership Tenants Housing Council and Co-partnership Tenants, Ltd.; Mr. George N. Barnes (Glasgow, Blackfriars), engineer, Secretary of the Amalgamated Society of Engineers, 1896-1908; and Sir William J. Bull (Hammersmith), of Messrs. Bull & Bull, solicitors, partner and Chairman of Messrs. J. W. Singer & Sons, of London and Frome, bronze founders, member of the Committee, Birkbeck College, and formerly Chairman of the Bridges Committee, London County Council.

Capital and Labour.

CONDITION OF EMPLOYMENT IN THE BUILDING TRADES.

Employment in December continued slack. It showed a seasonal decline as compared with a month ago, but was better than a year ago. The percentage of trade union carpenters and joiners unemployed at the end of December was 13·9, as compared with 10·6 a month ago and 15·9 a year ago; and for plumbers, at the same dates, the percentages were 9·9, 10·6, and 12·1 respectively. These percentages were usually exceeded in London, the Northern Counties, Scotland, and Ireland. Returns received from painters' unions show a considerable decline in employment compared with a month ago, while returns from bricklayers', masons', slaters', plasterers', and labourers' unions show little general change. The improvement compared with a year ago was general. For London the trade union returns show that 11·3 per cent. of carpenters and joiners were unemployed at the end of December, as compared with 12·1 a month ago and 15·5 a year ago. The corresponding percentages for plumbers were 13·7, 14·5, and 15·2 respectively. Returns received from 693 firms employing 38,863 workpeople at the end of December show that compared with a month ago there was a decrease in the total number employed of 6·8 per cent. Compared with a year ago there was a decrease in the number employed in Lancashire, Cheshire, and the Midland and Eastern Counties of 7·8 per cent., while in the remaining districts there was a net increase of 2·1 per cent.—*Board of Trade Labour Gazette.*

Law Reports.

EXPENSES OF MAKING UP AN ALLEGED NEW STREET.

THE case of the Mayor, etc., of Camberwell *v.* Dixon came before a Divisional Court of King's Bench, consisting of the Lord Chief Justice and Justices Bucknill and Bray, last week, upon a case stated by the magistrate at the Lambeth Police Court, who dismissed a summons taken out by the appellants for the purpose of recovering from the respondent, Mr. Dixon, 14*l.* 3s. 1d., being the apportioned sum of the expenses of making up a new street called Ruskin-walk.

It appeared from the special case which had been stated that Ruskin-walk was a public way before 1855, and was then known as Simpson's-alley. In 1869 it was widened, with the sanction of the London County Council, but was not adapted for carriage traffic. In 1907 it was further widened, but without the sanction of the London County Council, to 40 ft., a row of houses was erected on the widened street, and the respondent was the owner of one of such houses. The appellants decided to pave part of Ruskin-walk as a new street under the provisions of the Metropolis Management Act, 1855, and the respondent was charged with the sum of 14*l.* 3s. 1d. in respect of the same. Appellants contended that Ruskin-walk was a new street whether or not the sanction of the London County Council had been obtained to the widening. The respondent contended that Ruskin-walk had been illegally formed and laid out as a street as the London County Council's sanction had not been obtained, and, further, that it was contrary to the provisions of the London Building Act. In these circumstances the respondent contended that the appellants could not enforce against him the amount of their claim. The learned magistrate came to the conclusion that as Ruskin-walk had been formed and laid out as a street in 1907 without the sanction of the London County Council having been either applied for or obtained, under the London Building Act, 1894, it had therefore been illegally formed and laid out, and appellants could not claim their charges, and he accordingly dismissed the summons. The question for the opinion of the Court was whether the learned magistrate had arrived at a right decision in law in dismissing the summons.

At the conclusion of the arguments of counsel the Lord Chief Justice, in delivering judgment, said the learned magistrates had not decided that Ruskin-walk was not a street, but he had assumed it not to be a street because the proper steps had not been taken to obtain the sanction of the London County Council, and said, therefore, that this claim could not be maintained against this particular frontager. To his mind that was not the point, and was no reason why the magistrate should have declined to proceed further with the case. The appeal must be allowed, and the case sent back to the learned magistrate to be dealt with on the merits.

Justices Bucknill and Bray concurred.

Patents.

APPLICATIONS PUBLISHED.*

28,168 of 1908.—Giulio Serrazanetti: Metal revetments for protecting banks, slopes, and the like.

28,505 of 1908.—Ernest Leslie Ransome: Apparatus for laying concrete pavements and the like.

138 of 1909.—Edward Le Bas and Herbert Thomas Garvie: Steam pile-drivers and the like.

4,193 of 1909.—Josef Cochlar, Franz Hynar, and Emmanuel Kral: Fire-extinguishing apparatus applicable to roofs and ceilings for extinguishing fire by means of sand.

5,722 of 1909.—Thomas West and William Isiah George Lewis: Potters' kilns or ovens for firing bricks, pipes, and the like.

6,541 of 1909.—Stefan Tholt: Radiators and their constituent elements used for heating buildings and the like.

7,055 of 1909.—Andrew Clinton Edgar and Robert Alexander Patton: Radiators for heating buildings and the like.

8,397 of 1909.—Emil Riebel: Hinges and the manner of fastening the same.

10,318 of 1909.—Hermann Kriens: Apparatus for disseminating ozone in rooms.

16,145 of 1909.—Hugo Hartmann: Valve-discharge flushing cisterns for water-closets and the like.

16,435 of 1909.—Carl Davenport and Timothy Charles Goode, trading as David Ashton & Co., and Henry Robert Anderson: File-grinding machines.

18,242 of 1909.—Frank George Symmonds Price: Apparatus for mixing and consolidating concrete and like materials.

21,796 of 1909.—William Henry Baxter: Machinery for screening and elevating crushed stone, ore, refuse, clinker, and the like.

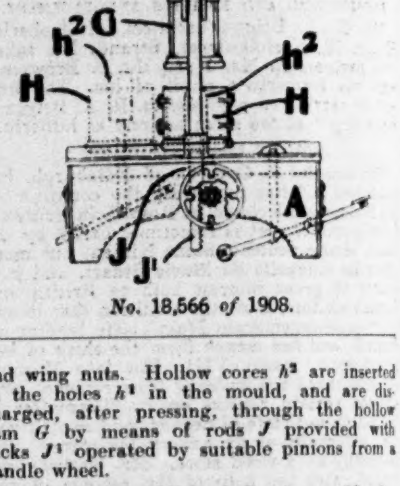
23,022 of 1909.—Fireproof Doors, Ltd., and Herbert Williams Umney: Fireproof doors and partitions.

24,274 of 1909.—David Craig and David Craig Company: Water-closet pedestals.

28,013 of 1909.—William Morris: Reversible casement window for public and other buildings.

SELECTED PATENTS.

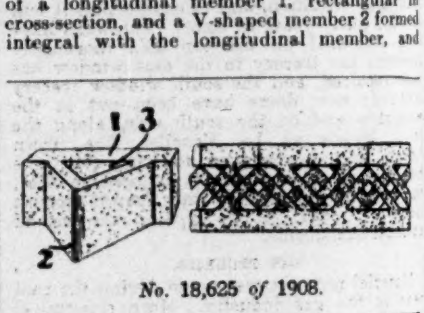
18,566 of 1908.—Augustus Phillips: Machine for moulding concrete blocks. This relates to a machine for moulding concrete blocks, which comprises a frame *A* carrying standards which support and guide a screw-operated, hollow pressing ram *G*. The mould *H* is guided along rails provided upon the frame *A*, and is formed with a front wall hinged to the base and ends hinged to a rigid rear wall, the sides being locked together by means of bolts



No. 18,566 *of* 1908.

and wing nuts. Hollow cores h^2 are inserted in the holes h^1 in the mould, and are discharged, after pressing, through the hollow ram *G* by means of rods *J* provided with racks J^1 operated by suitable pinions from a handle wheel.

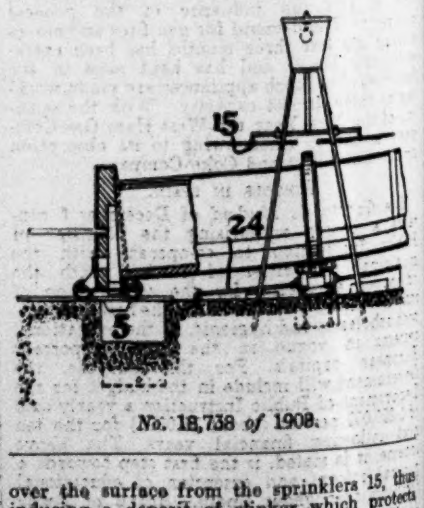
18,625 of 1908.—Micheal Gunderson Mandt: Building blocks. This relates to hollow concrete building blocks for walls, which consist of a longitudinal member 1, rectangular in cross-section, and a V-shaped member 2 formed integral with the longitudinal member, and



No. 18,625 *of* 1908.

connected to the inner vertical side of the longitudinal member at a distance from its ends. When the blocks are laid in courses one above the other to form a wall, the V-shaped members of one course overlap and bond with the V-shaped members of the course below, so that a series of air passages is formed.

18,738 of 1908.—Frank McKay Allan: Cement kilns. This relates to rotary cement kilns, which are cooled in the neighbourhood of the burning zone by allowing a film of water, preferably charged with lime and lime salts so as to form an external scale, to trickle



No. 18,738 *of* 1908.

over the surface from the sprinklers 15, thus inducing a deposit of clinker which protects the kiln lining. The water which drops from the under surface of the shell is collected by a tray 24, and delivered by a gutter to the clinker bed 5 to assist in cooling the clinker.

PATENTS.—*Continued on page* 190.

* All these applications are in the stage in which opposition to the grant of a patent upon them can be made.

List of Competitions, Contracts, etc.

For some Contracts still open, but not included in this List, see previous issues. Those with an asterisk (*) are advertised in this Number: Competitions, iv.; Contracts, iv. vi. viii. x.; Public Appointments, xvii.; Auction Sales, xxiv.

Certain conditions, beyond those given in the following information, are imposed in some cases, such as: the advertisers do not bind themselves to accept the lowest or any tender; that a fair wages clause shall be observed; that no allowance will be made for tenders; and that deposits are returned on receipt of a bonâ-fide tender unless stated to the contrary.

The date given at the commencement of each paragraph is the latest date when the tender, or the names of those willing to submit tenders, may be sent in.

***** It must be understood that the following paragraphs are printed as news, and not as advertisements; and that while every endeavour is made to ensure accuracy, we cannot be responsible for errors that may occur.**

Competitions.

JANUARY 1-MARCH 1. — **Leeds.** — PREMISES. — The Directors of the Leeds Industrial Co-operative Society, Ltd., invite architects to submit competitive drawings and estimates for new business premises and offices, to be erected on the site of the old "Mercury" office, Albion-street, Leeds. Premiums of 100*l.*, 50*l.*, and 25*l.* respectively are offered, and will be awarded to the authors of the designs and plans placed first, second, and third by the assessor appointed by the directors. Conditions of competition, etc., will be forwarded on application to the Secretary, on receipt of stamped addressed foolscap envelope, accompanied with a deposit of 2*l.* 2*s.*

JANUARY 31. — **Cardiff.** — NATIONAL MUSEUM.—The Council invite competitive designs for the erection of a new National Museum at Cardiff. Premiums of 200*l.*, 150*l.*, and 100*l.* for second, third, and fourth places. Particulars on receipt of a deposit of 2*l.* 2*s.* from Dr. Wm. Evans Hoyle, Director of the Museums, City Hall, Cardiff. For further particulars see advertisement in our issue of August 28.

FEBRUARY 1. — **Oldham.** — PROPOSED EXTENSION OF THE TOWN HALL.—The T.C. invite competitive designs for a proposed extension of the existing Town Hall from architects practising or residing within the Borough. A plan of the site, together with instructions and suggestions for the guidance of architects, may be obtained on application to Mr. E. C. Foote, the Borough Surveyor, on payment of 1*l.* 1*s.* Premiums of 50*l.*, 30*l.*, and 20*l.* respectively will be awarded to the authors of the designs which are selected as first, second, and third in order of merit, and a sum of 5*l.* will be paid to all unsuccessful competitors who send in a complete set of plans in accordance with the instructions.

FEBRUARY 1. — **St. Austell.** — CHURCH.—Competitive plans are invited for the erection of a proposed new Wesleyan church at Stenalees to seat 500 persons, and to include minister's vestry, lavatory, heating, lighting, and provision for a future gallery to seat 100, at a cost not exceeding 1,750*l.* Three premiums, namely, 5*l.*, 3*l.*, and 2*l.*, are offered for the three sets of plans which the trustees may select, the premium of the finally selected architect to merge into his commission. Full particulars and inspection of the site may be obtained on application to Mr. J. D. Vosper, Stenalees.

FEBRUARY 8.—**London.**—POSTER.—The Committee of the A.A. Play, 1910, invite designs for a poster illustrating this year's play. See advertisement in last week's issue.

FEBRUARY 10-MARCH 31. — **Sheffield.** — CHURCH — Plans desired for church for 650, institute for 150, primary department for 125, junior department for ninety-five, and caretaker's apartments, Endcliffe Park. Premium, not merged in commission, 35*l.* Assessor, Mr. Chas. Hadfield, F.R.I.B.A. Questions until Febuary 10. On receipt of 5*s.* the Secretary will furnish conditions and instructions, with plan of site. Deposit returned only to those who send plans. Secretary, Mr. J. W. Nicholls, 64, Everton-road, Brocco Bank, Sheffield.

* MARCH 1.—GLAZED BRICKWORK.—A committee of glazed brick manufacturers invite designs for works to be executed in glazed brickwork, and also essays on same.

Three prizes—100 guineas, 50 guineas, and 25 guineas respectively—are offered. See advertisement in this issue for further particulars.

MARCH 12. — **Blyth.** — SECONDARY SCHOOL. — The Governors of the Blyth Secondary School (acting for the Blyth U.D.C.) invite architects whose offices are situate in the counties of Northumberland, Durham, and Newcastle-upon-Tyne to submit plans in competition for a new secondary school and caretaker's house, to be erected at Blyth. The school is to accommodate 280 pupils. The competition will be conducted in accordance with the regulations of the Royal Institute of British Architects. The assessor appointed is Mr. J. A. Gotch, F.R.I.B.A., F.S.A. Copies of the conditions and of the plan of site may be obtained from Mr. Thos. R. Guthrie, Clerk to the Governors.

MAY 31. — **Karachi.** — MUNICIPAL OFFICE. — The Municipality of Karachi invite elevation designs and detailed plans and estimates for a new Municipal Office. For further particulars see advertisement in our issue of December 25.

NO DATE.—**Barry.**—PROPOSED TRAINING COLLEGE.—The Education Committee of the Glamorgan C.C. invite architects who have been in practice for ten years, and have been established in the county, or one of the county boroughs therein, for not less than seven years, to send in competitive designs in accordance with conditions which may be obtained on application to the Clerk of the County Council at the County Offices, Westgate-street, Cardiff, with the view to the selection by them of an architect to carry out the erection of a training college for 130 resident women students and twenty day students. The committee will be assisted in considering the designs sent in by Mr. Henry T. Hare, F.R.I.B.A., and the authors of the five designs that are placed first by him will be paid a fee of 15*l.* 15*s.* each, subject to such fee being merged into the commission to be paid to any one of the five who may be selected as the architect to carry out the work. Architects desiring to have the conditions must, in making their application, furnish particulars showing that they come within the above limitations.

* NO DATE.—**Peterborough.**—SCHOOL.—The Soke of Peterborough Education Committee invite competitive designs for a secondary school. See advertisement in this issue for further particulars.

Contracts.

BUILDING.

The date given at the commencement of each paragraph is the latest date when the tender, or the names of those willing to submit tenders, may be sent in.

JANUARY 29.—**Maesteg.**—HOUSE.—A detached house in Salisbury-road, Maesteg, for Dr. W. Kirkby. Names to Mr. E. Whitfield Burnett, M.S.A., architect, St. Michael's-road, Maesteg, accompanied by a deposit of 2*l.* 2*s.* for bills of quantities.

JANUARY 31.—**Annfield Plain.**—ALTERATIONS.—For alterations and additions at the central premises, Annfield Plain, for the Annfield Plain Industrial Co-operative Society, Ltd. Drawings, etc., may be seen, and forms of tender obtained, at the office of Mr. Geo. Thos. Wilson, architect, 22, Durham-road, Blackhill.

JANUARY 31. — **Devizes.** — CONVENIENCE.—Sanitary convenience on the Green, for the U.D.C. Plans, etc., at office of Mr. F. G. Billingham, Borough Surveyor, Town Hall.

JANUARY 31.—**Swansea.**—REBUILDING.—Rebuilding of Nos. 24, 25, and 26, Waterloo-street, Swansea, for Messrs. Pugsley & Son. Plans, etc., may be seen, and bills of quantities, etc., obtained, at the offices of Mr. Charles T. Ruthen, architect, Bank-chambers, Heathfield-street, Swansea.

FEBRUARY 1-9. — **Redford.**—BARRACKS.—The Secretary of State for War invites tenders for foundation work for barrack block, excavating, and levelling site for new cavalry barracks, Redford, in the Scottish Command. Plans, etc., may be inspected at the office of the Director of Barrack Construction, 80, Pall Mall, London, S.W. Those desiring to tender and to receive a copy of the bills of quantities must apply to the Director of Barrack Construction not later than February 1. The application must be accompanied by a deposit of 10*s.* Cheques or orders to be made payable to the Assistant Financial Secretary, and crossed "Bank of England for Credit to Army Funds."

FEBRUARY 2. — **Dewsbury.**—RESIDENCES.—Erection of two residences in Healds-road, Dewsbury. Plans, etc., at offices of Messrs. Barton & Son, architects, Halifax-road, Dewsbury.

FEBRUARY 2. — **Dunbar.** — ALTERATIONS.—For additions and alterations to the Burgh School, Dunbar, for the School Board. Plans may be seen, and schedules obtained, at the office of Mr. R. M. Cameron, architect, 53, Great King-street, Edinburgh.

FEBRUARY 2. — **Hopeman.** — COTTAGE. — Mason, slater, plumber, plaster, and painter works of a cottage to be erected at Hopeman. The plans, etc., may be seen with Mr. Fraser, carpenter, Hopeman, and at the office of Mr. John Wittet, architect, Elgin.

FEBRUARY 2.—**Millom.**—BANK ALTERATIONS.—Alterations to the Millom Branch of the Bank of Liverpool. Plans may be seen, and bills of quantities obtained from the office of the architects, Messrs. Settle & Brundrit, A.R.I.B.A., County-square, Ulverston, and 127, Ramsden-square, Barrow-in-Furness.

FEBRUARY 2 — **Minster.**—ROOM.—The Isle of Thanet Guardians invite tenders for the erection of an attendant's room at the Workhouse, Minster. Plan, etc., may be seen on application to the Workhouse Master.

FEBRUARY 2-9.—**Mitcham.**—ADDITIONS TO SCHOOLS.—Holborn Guardians invite tenders for additions to their schools at Mitcham, Surrey. Specification, form of tender, etc., upon application to the Guardians' Architect, Mr. A. Saxon Snell, F.R.I.B.A., of 22, Southampton-buildings, Chancery-lane, W.C., and depositing with him a 5*l.* Bank of England note.

FEBRUARY 2. — **Oakham.** — OFFICES.—Rutland C.C. Education Committee invite tenders for the erection of new offices. Quantities can be obtained on application to Mr. H. F. Traylen, A.R.I.B.A., architect, 16, Broad-street, Stamford, where plans and specifications can be seen.

FEBRUARY 2.—**Oldham.**—ROOF WORKS.—The Baths Committee invite tenders for alterations and repairs to roof over gentlemen's swimming bath at Central Baths. Particulars may be obtained at the Borough Surveyor's Office, Town Hall, Oldham.

FEBRUARY 2. — **Ravensthorpe.** — WAREHOUSE.—Mason and bricklayer's, joiner and carpenter's, slater's, plumber and glazier's, and painter's work required in the erection of a warehouse at Ravensthorpe. Drawings, etc., at office of Messrs. J. Firth & Son, architects, Vulcan-road, Dewsbury.

FEBRUARY 2.—**Scopwick.**—REBUILDING CHANCEL.—Rebuilding of the chancel of Scopwick Church, Lincolnshire. Plans, etc., on application to the Rev. T. Cutler, The Vicarage, Scopwick. Quantities may be obtained on application to Mr Wm. Morton, quantity surveyor, 45, John-street, Sunderland.

FEBRUARY 2. — **Walton.** — LAUNDRY. — West Derby Guardians invite tenders for new laundry, Walton Workhouse (for contractors having business premises and workshops within the West Derby Union, the Township of Toxteth Park, or the Parish of Liverpool). A set of quantities can be obtained from Mr. Harris P. Cleaver, Union Clerk, Brougham-terrace, West Derby-road, Liverpool, on payment of 2*l.* 2*s.* Specifications, etc., can be seen at the office of the architect, Mr. C. H. Lancaster, Brougham-terrace, West Derby-road, Liverpool.

FEBRUARY 3.—**Bargoed.**—PARISH HALL.—Parish hall at Bargoed for the Vicar and Churchwardens. Plans, etc., can be seen, and full particulars obtained, at the architect's office, Station-road, Bargoed.

FEBRUARY 3. — **Bundoran.** — SKATING RINK.—Tenders are invited from manufacturers of iron buildings for supplying and erecting a skating rink at Bundoran, Co. Donegal. Makers to submit their own designs. Full particulars may be obtained from Mr. F. G. Townsend, A.M.Inst.C.E.I., Ballyshannon, Co. Donegal.

FEBRUARY 3. — **Cloneygowan.** — COTTAGES.—The D.C. invite tenders for the erection of six single labourers' cottages. For further particulars see handbills, which can be had on application to Mr. Richard Goodbody, Clerk of the Council, D.C. Office, Mountmellick, Ireland.

FEBRUARY 3.—**Morley.**—EXTENSION OF MILL PREMISES.—Various works required in the extension of mill premises, Perseverance Mills, Morley, for Messrs. A. Marshall & Son, Ltd. Plans, etc., may be seen, and quantities obtained, at offices of Mr. T. A. Buttery, F.I.A.S., architect, Queen-street, Morley.

FEBRUARY 4-17. — **Ashby.** — SCHOOL.—Lindsey C.C. Education Committee invite tenders for the erection of an elementary school at Ashby, near Scunthorpe. Bills of quantities, etc., may be had on application to Messrs. Scorer & Gamble, architects, Bank-street-chambers, Lincoln, on payment to them of the sum of 2*l.* 2*s.*

FEBRUARY 5. — **Aultbea.** — HOUSE. — Erection of a police-constable's house at Aultbea. Plans, etc., to be seen with Mr. William Mackenzie, architect, Dingwall.

FEBRUARY 5. — **South Cave.** — ALTERATIONS. — East Riding of Yorkshire C.C. Small Holdings and Allotments Committee invite tenders for alterations to house and buildings at West End Farm, South Cave. Specifications, etc., may be obtained from the Clerk of the County Council, County Hall, Beverley.

FEBRUARY 8. — **Crosskeys (Mon.).** — WORKMEN'S INSTITUTE.—Workmen's Institute at Crosskeys, Mon. Plans, etc., may be seen at the office of Mr. R. L. Roberts, M.S.A., Abercarn. Quantities supplied on payment of 2*l.* 2*s.*

* FEBRUARY 9.—**Mitcham.**—ADDITIONS TO SCHOOLS.—The Guardians of the Holborn Union invite tenders for additions to schools at Mitcham, Surrey. See advertisement in this issue for further particulars.

* FEBRUARY 10. — **London.**—MELTING-HOUSE. — The Commissioners of H.M. Works and Public Buildings invite tenders for new melting-house, etc., at the Royal Mint. See advertisement in this issue for further particulars.

* FEBRUARY 10. — **Torquay.** — POST-OFFICE. — The Commissioners of H.M. Works and Public Buildings invite tenders for a new Post-office at Torquay. See advertisement in this issue for further particulars.

FEBRUARY 14.—**South Shields.**—MUNICIPAL BUILDINGS, FORECOURT.—The Corporation invite tenders for the formation of the forecourt of the Municipal Buildings. A copy of the quantities, etc., may be obtained on application to Mr. J. Moore Hayton, Town Clerk, Court-buildings, South Shields, and drawings, etc., may be inspected at his offices, or at the office of the architect, Mr. E. E. Fetch, A.R.I.B.A., 20, John-street, Adelphi, London, W.C.

* FEBRUARY 16. — **Bocking.** — BOILER-HOUSE. — The Guardians of the Braintree Union invite tenders for new boiler-house, sorting-room, etc., to laundry and kitchen at Union Workhouse, Bocking. See advertisement in this issue for further particulars.

FEBRUARY 16.—**Newport.**—ROOFING.—The Corporation of Newport invite tenders for recovering with zinc or copper part of the roof of their general markets. A sectional drawing of the roof, together with general specification, may be obtained from Mr. R. H. Haynes, Borough Engineer, on production of a receipt from the Borough Treasurer for 1*l.* 1*s.*

BUILDING—*continued.*

The date given at the commencement of each paragraph is the latest date when the tender, or the names of those willing to submit tenders, may be sent in.

FEBRUARY 23.—**Clifford.**—SCHOOL ALTERATIONS.—Herefordshire C.C. Education Committee invite tenders for the carrying out of certain additions and alterations to the Council School, situate at Clifford, near Hay. The plans, etc., may be seen, and bills of quantities and form of tender obtained, at the office of the County Surveyor, Shire Hall, Hereford, on payment of 1*l.* 1s.

FEBRUARY 25.—**St. Dennis (Cornwall).**—HOUSE.—For a dwelling-house and shop at Fore-street, St. Dennis, for Mr. T. Varcoe. Drawings, etc., may be seen at the office of Mr. B. C. Andrew, M.S.A., architect, Biddicks-court, St. Austell.

NO DATE.—**Bury.**—WESLEYAN CHURCH.—Work in connexion with the erection of Wesleyan church and school, Rochdale Old-road, Jericho, Bury, for the Trustees of Moulding Wesleyan Church. Names to Mr. Wm. E. Gill, architect and surveyor, 6, Fleet-street, Bury.

* NO DATE.—**East Coast.**—BUNGALOWS.—Applications are invited for building 100 houses of bungalow type on the east coast. See advertisement in this issue for further particulars.

NO DATE.—**Garlands, Carlisle.**—SHELTERS, ETC.—For outdoor shelters and verandahs to No. 7 male and female blocks at Cumberland and Westmorland Asylum, Garlands. Mr. Geo. Dale Oliver, F.R.I.B.A., County Architect, Carlisle.

NO DATE.—**Godrergraig.**—HOUSES.—Erecting fifty houses, near Swansea, for Mr. T. Griffiths, Tarreni-terrace, Godrergraig. Plans and specifications may be seen at the owner's address.

NO DATE.—**Seighford, etc.**—COTTAGES.—The Small Holdings Committee invite tenders for the erection of cottages and buildings on small holdings in the Parishes of Seighford (near Stafford), Hatherton (near Cannock), and Penn (near Wolverhampton). Particulars can be obtained from the County Estate Agent, 3, Martin-street, Stafford.

NO DATE.—**Sherburn-in-Elmet.**—ALTERATIONS.—Builder and plumber's work required in minor alterations at the Sherburn-in-Elmet Provided School. Specification and quantities may be obtained on application. Mr. Robert J. Smith, Education Offices, Garforth, near Leeds.

NO DATE.—**Watford.**—WAREHOUSE, ETC.—New warehouse, granary, and stabling, etc., in the Queen's-road, Watford, for Messrs. R. G. Norman & Sons. Drawings, etc., by Mr. Chas. P. Ayres, architect, 6, The Parade, High-street, Watford, from whom full particulars, etc., can be obtained.

NO DATE.—**Ystalyfera.**—HOUSES.—Erecting fifty houses at Ystalyfera. Plans, etc., may be seen at Mr. Charles T. Ruthen, architect, Swansea.

ENGINEERING, IRON, AND STEEL.

FEBRUARY 3.—**Bootle.**—ELECTRIC LIGHT.—The Corporation of Bootle invite tenders for the supplying and fixing of a complete electric light installation to the new Orrell Council Schools. Specifications, etc., can be obtained from the Borough Electrical Engineer's office, Electric Light Station, Pine-grove, Bootle, where plans of the schools can be inspected.

FEBRUARY 5.—**Goole and Thornaby.**—STEELWORK.—The Directors of the North-Eastern Railway invite tenders for the supply of steelwork for two bridges near Goole and Thornaby-on-Tees respectively. Plans, etc., may be seen, and detailed quantities, etc., obtained, on personal application to the office of Mr. C. F. Bengough, the Company's Engineer at York.

FEBRUARY 7.—**Acton.**—STEAM PIPING.—Acton U.D.C. invite tenders for the execution of the necessary work required in providing steam piping, etc., necessary in connexion with the boiler and heating apparatus at the Baths and New Public Offices, Acton. Further particulars, etc., may be obtained from the Surveyor to the Council, 57, High-street, Acton, W.

FEBRUARY 8.—**Sheffield.**—RETORTS, ETC.—The Directors of the Sheffield United Gas Light Company invite tenders for the supply of steel and ironwork for twelve settings of ten retorts at their Neepsend Works. Drawings may be seen, and specification, etc., obtained, upon application to the Engineer, Mr. J. W. Morrison, at the Company's Offices, Commercial-street.

FEBRUARY 14.—**Auckland.**—BRIDGE.—The R.D.C. of Auckland invite tenders for building a small bridge at Horndale, on the road between Middridge and Aycliffe, and making the road, approaches, etc. Plans, etc., may be seen, and form of tender obtained, at the office of Mr. John Heslop, Highway Surveyor, Cockton House, Bishop Auckland.

FEBRUARY 15.—**Witham.**—BOILER, ETC.—The Metropolitan Asylums Board invite tenders for the installation of a new vertical steam boiler and shed at the Bridge Industrial Home, Witham, Essex, in accordance with drawings, etc., prepared by Mr. W. T. Hatch, M.Inst.C.E., M.Inst.M.E., Engineer-in-Chief. Form of tender, etc., may be inspected at the office of the Board, Embankment, London, E.C., and can then be obtained upon payment of a deposit of 1*l.*

FEBRUARY 16.—**Sheerness.**—HEATING ARRANGEMENTS.—For heating arrangements for the Guardians, at the infirmary and other wards of the Workhouse, Minster. A committee will meet intending contractors at the Workhouse by appointment. Letters to be sent to the Master, Sheppey Union, Minster, near Sheerness.

* FEBRUARY 18.—**Torquay.**—HEATING AND VENTILATING.—The Torquay T.C. invite tenders for heating and ventilating the pavilion proposed to be erected in the Princess Gardens, Torquay. See advertisement in this issue for further particulars.

NO DATE.—**Warrington.**—GAS ENGINE, ETC.—The Gas Committee of the Warrington Corporation invite tenders for the supply of gas engine and steam pump. Particulars on application to Mr. W. S. Haddock, Gas Engineer.

MISCELLANEOUS.

FEBRUARY 2.—**Boston.**—CARTING.—Holland C.C. Roads and Bridges Committee invite tenders for carting materials for the main roads in the north and south divisions of the county. Forms of tender may be obtained either from the District Main Road Surveyors or Mr. H. Chaderton Johnson, Clerk of the County Council, office of the Clerk of the County Council, Sessions House, Boston.

FEBRUARY 3.—**Dublin.**—STEAM ROAD ROLLER.—The Paving Committee invite tenders for the hire of a steam road roller not less than 12 tons, and a driver to operate same, for a period of six months or thereabouts. Mr. Patrick Tobin, Secretary, City Hall, Dublin.

FEBRUARY 3.—**London.**—BUOY SINKERS.—Tenders are invited for the supply of certain cast-iron buoy sinkers. Drawings of the sinkers and forms of tender may be obtained at Trinity House, E.C. Mr. A. Owen, Secretary.

FEBRUARY 3.—**Yarmouth, etc.**—BUOYS.—Trinity House, London, E.C., invite tenders for the construction and delivery at Yarmouth, Blackwall, Neyland, and Holyhead of certain steel can, conical, and wreck buoys. Drawings may be inspected, and forms of tender obtained, at Trinity House.

FEBRUARY 5.—**Cramlington.**—TEAM LABOUR.—Cramlington U.D.C. invite tenders for the supply of team labour, etc. Specifications, etc., may be had on application to Mr. Wm. I. Coulson, Surveyor, Council Office, Cramlington.

FEBRUARY 8.—**Blaydon.**—SCAVENGING.—Blaydon U.D.C. invite tenders for the removal and disposal of contents of ashpits, house refuse, etc. Specification, etc., may be obtained from Mr. Robert Biggins, Sanitary Inspector, at the Offices of the Council, Blaydon-on-Tyne.

FEBRUARY 8-22.—**Leyton.**—FURNITURE.—The Leyton U.D.C. invite tenders for the supply of furniture and fittings required for the outfit of the Public Offices Extension. Written application for specification, etc., must be made on or before February 8 to Mr. William Jacques, A.R.I.B.A., 2, Fen-court, Fenchurch-street, E.C., which application must be accompanied by a deposit of a 5*l.* Bank of England note (cheques will not be accepted).

FEBRUARY 8.—**Oldham.**—BOWLING GREENS.—The Parks Committee invite tenders for the construction of bowling greens at Copster Hill Recreation Ground. Particulars may be obtained at the Borough Surveyor's Office, Town Hall, Oldham.

FEBRUARY 9.—**Forfar District Roads.**—QUARRYING, ETC.—Estimates are wanted by the Forfar District Committee of the C.C. for quarrying or gathering, carting, and breaking materials for the repair of the highways in the Forfar District of Forfarshire. Schedules, with copies of specifications and conditions, may be had from the Surveyor, Mr. Donald Ross, Brechin-road, Kirriemuir.

FEBRUARY 28.—**Glasgow.**—BOOKCASES IN PRINCIPAL BOOK STORES.—The Corporation invite offers for supplying and erecting mahogany bookcases, Mitchell Library. Plans can be seen, and all information obtained, at the office of the architect, Mr. William B. Whitie, 219, St. Vincent-street, Glasgow. The Corporation also invite manufacturers of metal bookcases to submit designs and estimates for supplying and erecting said bookcases in metal. Plans and other necessary information will be obtained at the office of the architect. Specification and form of tender may be had at the Office of Public Works, 30, Cochrane-street, on payment of a deposit of 5*l.* 5s.

* NO DATE.—**Acton (W.).**—PULLING DOWN.—Tenders are invited for the sale of materials and fittings of Hill House, Acton, W. See advertisement in this issue for further particulars.

NO DATE.—**Dorking.**—SPRINKLERS, ETC.—Dorking U.D.C. invite quotations for supplying and fixing modern revolving sprinklers and bacteria beds at the sewage works. Further information may be obtained on application to the Town Surveyor, 64, South-street, Dorking.

PAINTING, etc.

JANUARY 31.—**Carlisle.**—PAINTING.—The Corporation invite tenders for painting, colouring, etc., required to be done at the Covered Markets. Specification, etc., may be obtained from Mr. Henry C. Marks, M.Inst.C.E., City Engineer and Surveyor, 36, Fisher-street, Carlisle, on payment of 10s. 6d.

FEBRUARY 2.—**Ely, near Cardiff.**—PAINTING.—Llandaff and Dinas Powis R.D.C. invite tenders for work of repainting at the Isolation Hospital at Ely, near Cardiff, in accordance with specification, etc., which may be obtained on application to the surveyor, Mr. James Holden, A.M.Inst.C.E., 20, Park-place, Cardiff.

FEBRUARY 2.—**Sunderland Infirmary.**—PAINTING, ETC.—The Committee invite tenders for the annual cleaning and painting. Particulars on application to the Secretary.

ROADS, SANITARY, AND WATER WORKS.

JANUARY 31.—**Edinburgh.**—ROAD WORKS.—Edinburgh Corporation Roads Department invite estimates for works on the following carriageways, viz.:—(1) Corstorphine-road—both sides of tramways between Coltbridge and Murrayfield-road (granite setts); (2) London-road—north of tramways, opposite St. Margaret's Works, and south of tramways at Willowbrae-road (hard whinstone setts). Schedules, etc., may be obtained on application to the City Road Surveyor, City Chambers.

JANUARY 31.—**Little Lever.**—SEWERING.—Little Lever U.D.C. invite tenders for draining and sewering at Falcon-street and Back Stopes-road, Little Lever. Plans, etc., may be seen, and quantities, etc., obtained, on application to Mr. W. J. Lomax, Surveyor, 11, Fold-street, Bolton.

JANUARY 31.—**Whitley.**—STREET WORKS.—Whitley and Monkseaton U.D.C. invite tenders for laying-out and constructing streets on the Grosvenor Estate, Whitley Bay. Plan, etc., may be seen, and bill of quantities, etc., obtained, on application at the office of Mr. A. J. Rousell, A.M.Inst.C.E., the Council's Surveyor, Council Offices, Whitley Bay.

FEBRUARY 1.—**Darton.**—SEWERAGE.—For 815 yds. of 9-in. and 6-in. sewers; also manholes and lamp-shafts, and the laying and jointing of 340 yds. of 4-in. cast-iron water main, etc., for the U.D.C. Specifications, etc., can be had on application, and plans seen, at the office of Mr. Samuel Wilkinson, Surveyor and Engineer, Darton.

FEBRUARY 1.—**Hipperholme.**—SEWERS.—Hipperholme U.D.C. invite tenders for the construction of main pipe sewers in the Mytholme Valley District:—(*a*) Mytholme Valley, from Badger-lane to Mytholme; (*b*) Dumb Mill-lane, from Mytholme to railway bridge. Plans, etc., may be seen, and forms of tender obtained, at the office of Mr. Frank Massie, M.Inst.C.E., Tetley House, Kirkgate, Wakefield, on payment of the sum of 2*l.* 2s. for each contract.

FEBRUARY 1.—**Leigh-on-Sea.**—ROAD.—For making-up Grange-road for the U.D.C. Plans, etc., may be seen at the offices of the Surveyor, Mr. John W. Liversedge, A.M.Inst.C.E., from whom bill of quantities may be obtained on payment of a deposit of 2*l.* 2s. for each copy.

FEBRUARY 1.—**Ormesby.**—PRIVATE STREET WORKS.—The Ormesby U.D.C. invite tenders for the draining, levelling, paving, and making of the back street between Peaton-street and Frederick-street, North Ormesby. Plans, etc., can be seen on application to Mr. W. G. Harrison, Surveyor, at the Council Offices, High-street, North Ormesby.

FEBRUARY 1.—**Thornaby-on-Tees.**—NEW STREETS.—The Corporation invite tenders for the forming, sewering, paving, kerbing, flagging, and channelling of streets. Plans, etc., may be seen, and copies of the bills of quantities obtained, at the Borough Engineer's Office, Town Hall. Tenders, on proper forms only, which will be supplied.

FEBRUARY 1.—**Wakefield.**—LAYING PIPES, ETC.—Wakefield R.D.C. invite tenders for the supply and laying of 1,250 yds. of new 10-in. water main in Doncaster-road, Belle Vue. Forms of tender can be obtained at the office of Mr. Frank Massie, M.Inst.C.E., Tetley House, Kirkgate, Wakefield, on payment of the sum of 1*l.* 1s. for each contract (three).

FEBRUARY 2.—**Littlehampton.**—KERBING, ETC.—Littlehampton U.D.C. invite tenders for providing and laying about 100 yds. of pennant kerbing, 100 yds. of small kerb with brick channel; also about 200 yds. square of concrete slab paving in Selborne-road. Drawings, etc., can be seen, and form of tender obtained, on application to the Council's Surveyor, Mr. H. Howard, F.S.I., Town Offices.

FEBRUARY 3.—**Birmingham.**—STREET WORKS.—The Public Works Committee invite tenders for the improvement of Beichers-lane (from Bordesley Green to Yardley-road) and for the improvement of Bordesley Green (from Marchmont-road to Belchers-lane). The drawings, etc., may be seen, and quantities, etc., obtained, at the office of Mr. Henry E. Stilgoe, M.Inst.C.E., City Engineer and Surveyor, The Council House, Birmingham, on deposit of the sum of 2*l.*

FEBRUARY 4.—**Honiton.**—ROAD WORKS.—Honiton R.D.C. invite tenders for the maintenance and repair of main roads. Specifications, etc., can be obtained on application to Mr. E. W. Hellier, Clerk to the Council.

FEBRUARY 5.—**Glasgow.**—NEW MAINS FROM CRAIGMADDIE.—The Corporation invite tenders for laying portions of two additional mains from Craigmaddie Service Reservoir to the City. The drawings may be seen, and copies of the specification, etc., obtained, on application to Mr. J. R. Sutherland, Engineer, Water Department, at his office, 45, John-street, Glasgow.

FEBRUARY 5.—**Houghton-le-Spring.**—STREET WORKS.—The U.D.C. of Houghton-le-Spring invite tenders for the formation of certain parts of Outram-street and east back Sunderland-street. Plans, etc., may (by appointment) be seen, and further particulars, etc., obtained, on application to Mr. John W. Holbrook, Surveyor's office, Houghton-le-Spring.

FEBRUARY 7.—**Birstall.**—SEWERING, ETC.—The U.D.C. of Birstall invite tenders for the sewering, levelling, paving, flagging, and completing of portion of Carr-street. Plans, etc., may be seen on application to the Council's Surveyor, Mr. Arthur Walker.

FEBRUARY 7.—**Little Eaton.**—WATER SUPPLY.—Derby Corporation Waterworks Committee invite tenders for carting, laying, and jointing cast-iron mains, from Low Level Works at Little Eaton to the Parish of Little Eaton. Plans, etc., may be seen, and printed specification, etc., obtained, at the office of Mr. John Ward, M.Inst.C.E., Borough Surveyor and Waterworks Engineer, Borough Surveyor's office, Babington-lane, Derby, on deposit of 1*l.* 1s.

FEBRUARY 7.—**Nottingham.**—Burton Joyce Extension: Contract No. 2, pipe trenches and valve chambers.—The Water Committee invite tenders for excavating and timbering pipe trenches between bore-holes and receiving well; also for constructing valve chambers. Drawings may be seen, and copy of specification, etc., may be obtained, on application to Mr. F. W. Davies, Water Engineer, St. Peter's Church-side, Nottingham, on payment of a deposit of 1*l.* 1s.

FEBRUARY 8.—**Catford.**—ROAD WORKS.—Lewisham B.C. invite tenders for kerbing, channelling, and metalling the roadways and paving the footpaths with artificial stone of Vevey-street, Catford. The plan, etc., may be seen, and forms of tender obtained, at the Town Hall, Catford (Surveyor's Department). Copies of the specifications may also be had on payment of the sum of 5s. in each case, which will not be returned.

FEBRUARY 8.—**Mountain Ash.**—PAVING.—Mountain Ash U.D.C. invite tenders for paving portions of footways in Oxford-street, Mountain Ash. Plans, etc., may be seen, and forms of tender, etc., obtained, on application to Mr. W. G. Thomas, Surveyor, Town Hall, Mountain Ash.

FEBRUARY 9.—**Crosby.**—PAVING, ETC.—The R.D.C. of Glanford Brigg invite tenders for paving, kerbing, and channelling certain streets, or parts of streets, in the parish of Crosby. Plans, etc., may be seen, and forms of tender obtained, at the office of Mr. A. M. Cobban, Home-street, Scunthorpe.

ROADS, etc.—*con tinued.*

The date given at the commencement of each paragraph is the latest date when the tender, or the names of those willing to submit tenders, may be sent in.

FEBRUARY 9.—**Gosforth.**—SEWER WORKS.—Gosforth U.D.C. invite tenders for enlarging and extending the existing pipe sewer in Haddricksmill-road, near The Millstone public-house. All particulars may be obtained from Mr. George Nelson, A.M.Inst.C.E., Engineer and Surveyor to the Council, Council Chambers, High-street.

FEBRUARY 10. — **Bedford.** — PAVING, ETC. — The Authority invite tenders for paving and road-making in Pemberley-avenue, Bedford. Plans, etc., can be seen, and any other information obtained, at the Borough Surveyor's office, Town Hall, Bedford.

FEBRUARY 10. — **Bingley.** — RESERVOIR. — Bingley U.D.C. invite tenders for the construction of a service reservoir at Kettlewell Close, Bingley. Plans, etc., may be seen, and schedule of quantities obtained, on payment of 1*l.* 1s. Cheques to be made payable to the Bingley District Council (Mr. H. Bottomley, Engineer).

★ FEBRUARY 14. — **Wandsworth.**—ROAD-MAKING.—The Wandsworth B.C. invite tenders for works of repair to part of Victoria-road, Southfield. See advertisement in this issue for further particulars.

FEBRUARY 24.—**Farnham.**—SHOTTERMILL SEWERAGE AND SEWAGE DISPOSAL.—The R.D.C. invite tenders for the provision, laying, and jointing of about 7,000 yds. of 9-in. stoneware pipe sewers, etc.; also for the construction of liquefying tanks, four circular bacteria beds, etc. Drawings, etc., may be seen, and bills of quantities obtained, at the offices of the engineers, Messrs. Willcox & Raikes, 63, Temple-row, Birmingham, on payment of a deposit of 3*l.* 3s. Contractors can also see copies of the drawings, etc., at the London office of the engineers, 15, Victoria-street, Westminster, S.W., but must first obtain the bills of quantities from Birmingham.

FEBRUARY 25. — **Didcot.** — SEWAGE FARM. — The R.D.C. of Wallingford invite tenders for the work required in connexion with the extension of the Didcot Sewage Farm. Plan, etc., may be seen, and copies of the specification, etc., obtained, at office of Mr. G. F. Slade, Clerk to the R.D.C., Wallingford, 7, St. Martin's-street, Wallingford, upon the deposit of 1*l.* 1s.

MARCH 1.—**Nempnett and Winford.**—NEW ROAD. —The R.D.C. of Clutton invite tenders for the construction of a new road, about 800 yds. in length, in the parishes of Nempnett and Winford. Copy of the specification on application to the Council's Surveyor, Mr. T. Orchard, The Grange, Hallatrow, near Bristol, by depositing the sum of 1*l.* 1s.

STONES, MATERIAL, AND STORES.

JANUARY 31. — **Birkenhead.** — GRANITE.—The Corporation of Birkenhead invite tenders for the supply of granite and Rawtenstall kerbs and channels, Penmaenmawr breaking stone, and natural flags. Specifications, etc., may be obtained at the office of Mr. Charles Brownridge, M.Inst.C.E., Borough Engineer and Surveyor, Town Hall, Birkenhead.

JANUARY 31.—**Birkenhead.**—MATERIALS.—The Corporation of Birkenhead invite tenders for the supply and delivery of stores and materials. Specifications, etc., may be obtained at the office of Mr. Charles Brownridge, M.Inst.C.E., Borough Engineer and Surveyor, Town Hall, Birkenhead.

JANUARY 31.—**St. Andrews.**—WHINSTONE METAL CHIPS.—The St. Andrews T.C. invite tenders for the supply of 1,500 tons or thereby of machine-broken whinstone metal and chips. Specification, etc., may be obtained from Mr. William Watson, Burgh Surveyor, St. Andrews.

JANUARY 31.—**Whitley.**—MATERIALS.—Whitley and Monkseaton U.D.C. invite tenders for the supply of materials within their district for one year. Specifications, etc., may be obtained of Mr. A. J. Rousell, A.M.Inst.C.E., Surveyor to the Council, at his office, Council Offices, Whitley Bay.

FEBRUARY 1. — **Hammersmith.** — BATTEN ENDS.—Tenders for the supply of batten ends for firewood are invited. Send stamped foolscap envelope to Clerk to the Guardians, 206, Goldhawk-road, Shepherd's Bush, W., for tender form.

FEBRUARY 1.—**Hammersmith.**—GUERNSEY GRANITE SPALLS.—Tenders for the supply and delivery of 100 tons of Guernsey granite spalls to the Workhouse, Ducane-road, Wormwood Scrubs, W., are invited by the Guardians, 206, Goldhawk-road, Shepherd's Bush.

FEBRUARY 1. — **Huntingdon.** — GRANITE, ETC.—Hunts C.C. invite tenders for the supply of granite and slag for the year ending March 31, 1911. Form of tender, etc., may be obtained on application to Mr. Herbert Leete, County Surveyor, 36, High-street, Huntingdon.

FEBRUARY 1.—**Manchester.**—PITCH.—Manchester Corporation Tramways Committee invite tenders for the supply of pitch for paving purposes. Specifications, etc., may be obtained on application to Mr. J. M. M'Elroy, General Manager, Corporation Tramways, 55, Piccadilly, Manchester.

FEBRUARY 2.—**London.**—DEAL ENDS.—Poplar Board of Guardians invite tenders for the supply of deal and batten ends to the Branch Workhouse, 95, Forest-lane, Forest Gate, E. Printed forms of tender may be obtained by personal application at office of Mr. G. Herbert Lough, Clerk to the Guardians, Guardians' Offices, 45, Upper North-street, Poplar, E., or on request will be forwarded by post.

FEBRUARY 2.—**London.**—PICKS, FILES, ETC.—The East Indian Railway Company invite tenders for the supply and delivery of (1) picks, kodalies, phowrahs, and shovels; (2) files; (3) steel palisade fencing, as per specifications to be seen at the office of Mr. C. W. Young, Secretary, Nicholas-lane, London, E.C. For each specification a fee of 1*l.* 1s. is charged, which cannot under any circumstances be returned.

★ FEBRUARY 2.—**London.**—TIMBER AND BUILDER'S MATERIALS.—The Metropolitan Asylums Board invite tenders for supply of timber and builder's materials. See advertisement in this issue for further particulars.

FEBRUARY 3.—**Belfast.**—STORES.—Midland Railway Company, Northern Counties Committee (Ireland), invite tenders for the supply of requirements during the ensuing year. Patterns and samples can be inspected on application to the General Stores Department, Belfast. Forms of tender can be obtained on application to Mr. Ellis, Stores Superintendent, York-road Station, Belfast, on prepayment of 6d. for each form.

FEBRUARY 3.—**Ely.**—GRANITE, ETC.—Isle of Ely C.C. invite tenders for the supply of broken materials for the repair of main roads. Specifications, etc., can be obtained upon the receipt of a stamped addressed foolscap envelope at the offices of Mr. H. Farr Simpson, County Surveyor, Northern Division, Wisbech, and Mr. R. S. W. Perkins, County Surveyor, Southern Division, Ely.

FEBRUARY 3. — **Greenwich.** — BOARDS.—Greenwich Guardians invite tenders for 20 fathoms of firewood boards for Grove Park Workhouse, Lee, S.E. Forms of tender can be obtained on application at the Union Offices, Woolwich-road, Greenwich.

FEBRUARY 3. — **Lee.** — GRANITE.—The Greenwich Guardians invite tenders for a cargo of about 500 tons Channel Island or genuine Guernsey granite spalls for stone breaking for Grove Park Workhouse, Lee, S.E. Forms of tender can be obtained on application at the Clerk's Office, Woolwich-road, Greenwich.

FEBRUARY 3. — **Nottingham.** — CREOSOTED WOOD PAVING BLOCKS.—The Works and Ways Committee invite tenders for the supply of 250,000 creosoted wood paving blocks. Specification, etc., may be obtained on applying to Mr. Arthur Brown, M.Inst.C.E., City Engineer, Guildhall, Nottingham, on payment of a deposit of 10s.

FEBRUARY 3. — **West Ham.** — TIMBER, ETC.—The Education Committee invite tenders for the supply of timber (required for use in the manual instruction centres); brooms, brushes, etc.; disinfectants, etc. Forms of tender and further particulars may be obtained at the Town Clerk's Office, 95, The Grove, Stratford, E.

FEBRUARY 4. — **Grimsby.** — MATERIALS.—The Corporation invite tenders for the supply of materials. Specifications, etc., may be obtained at office of Mr. H. Gilbert Whyatt, A.M.Inst.C.E., Borough Engineer and Surveyor, Municipal Buildings, 170, Victoria-street, Grimsby. Applications to be accompanied by addressed foolscap envelopes (unstamped).

FEBRUARY 5.—**Glasgow.**—NEW MAINS FROM CRAIGMADDIE.—The Corporation invite tenders for supplying about 5,250 tons of 36-in. cast-iron pipes and special castings required for portions of two additional mains from Craigmaddie Service Reservoir to the City. Drawings may be seen, and copies of the specification, etc., obtained, on application to Mr. J. R. Sutherland, Engineer, Water Department, at his office, 45, John-street, Glasgow.

FEBRUARY 5.—**Glasgow.**—PIPES.—The Corporation invite tenders for supplying about 700 tons of cast-iron pipes. Drawings may be seen, and copies of the specification, etc., obtained, on application to Mr. J. R. Sutherland, Engineer, Water Department, at his office, 45, John-street, Glasgow.

FEBRUARY 5. — **Warrington.** — MATERIALS.—The Paving and Sewerage Committee of the Council of the County Borough of Warrington invite tenders for the supply of the Committee's requirements during twelve months. Specifications, etc., may be seen, and forms of tender, etc., obtained, at the office of the Borough Surveyor, Town Hall.

FEBRUARY 7.—**Bury.**—MATERIALS.—The Corporation of Bury invite tenders for the supply and delivery of materials during the year, subject to the terms and conditions contained in specifications prepared by Mr. Arthur W. Bradley, A.M.Inst.C.E., Borough Engineer and Surveyor, from whom intending contractors may obtain copies thereof and forms of tender.

FEBRUARY 7. — **Cheshunt.** — ANNUAL CONTRACTS.—The U.D.C. of Cheshunt invite tenders for the supply of materials. Specifications and forms of tender may be obtained on application to Mr. J. E. Sharpe, Engineer and Surveyor, Manor House, Cheshunt.

FEBRUARY 7. — **Chesterfield.**—CHALK.—Chesterfield R.D.C. invite tenders for the supply of 200 tons of chalk. Particulars may be obtained from the Council's Waterworks Engineer, Mr. Gilbert Frith, Union Offices, Chesterfield.

★ FEBRUARY 7. — **Hendon.** — MATERIALS, ETC. — The Hendon U.D.C. invite tenders for supply of materials, etc., for one year, from April 1 next. See advertisement in this issue for further particulars.

FEBRUARY 8. — **Downham.**—GRANITE, ETC.—Downham R.D.C. invite tenders for the supply of materials for the year ending March 31, 1911. Form to be obtained of Mr. H. R. B. Wayman, Clerk to the Council, Council Offices, Downham Market.

FEBRUARY 8. — **Halifax.** — MATERIALS.—The Gasworks Committee of the Halifax Corporation invite tenders for the supply of cast-iron pipes, oils, paints, etc. Forms of tender, etc., may be obtained on application to Mr. J. Wilkinson, F.C.S., Engineer, Gasworks, Halifax.

FEBRUARY 8. — **Lewes.** — ROAD MATERIALS.—East Sussex C.C. Roads and Bridges Committee invite tenders for the supply of materials, cartage, and team labour for the maintenance of the main roads. Further particulars, etc., can be obtained on application to Mr. F. J. Wood, A.M.Inst.C.E., County Surveyor, County Hall, Lewes.

FEBRUARY 8. — **Meriden.** — STONE. — The Meriden R.D.C. invite tenders for the supply of granite or other similar stone. Form may be obtained at office of Mr. A. W. Liggins, Clerk, 11, Priory-street, Coventry.

FEBRUARY 8.—**Middlesbrough.**—ROAD MATERIAL.—The Middlesbrough R.D.C. invite tenders for the supply of whinstone (broken and unbroken) and of limestone for macadamising purposes. Further particulars and forms of tender may be obtained on application to Mr. W. H. Dixon, District Surveyor, Kirkby-in-Cleveland, near Stokesley, S.O., or to Mr. William Richardson, Clerk for Highway Purposes to the Middlesbrough R.D.C., Stokesley, S.O., Yorkshire.

FEBRUARY 8.—**Portsmouth.**—ELECTRICITY SUPPLY.—Portsmouth Corporation invite tenders for the twelve months' supply of stores, etc. Particulars, etc., can only be obtained at the Electric Lighting Station, Gunwharf-road, Portsmouth.

FEBRUARY 8. — **Rochford.** — DEAL ENDS. — The Guardians invite tenders for the supply, up to March 31, 1911, of best Baltic deal ends, in 1-ft. to 5-ft. lengths, delivered free to the Workhouse at Rochford (G.E.R.). Mr. Frederic Gregson, Clerk, No. 46, Alexandra-street, Southend-on-Sea.

FEBRUARY 9. — **Escrick.** — STONE.—Escrick R.D.C. invite tenders for the supply of best whinstone, tar macadam, slag, and granite. Forms of tender can be obtained of Mr. Fred. A. Camidge, Clerk to the above Council, 3, Stonegate, York, on receipt of stamped addressed brief envelope.

FEBRUARY 9. — **Ladysmith, Natal.** — PIPES.—The Corporation invite tenders for the manufacture, supply, and delivery "free on rail" at the Port of Durban, Natal, of about 720 tons of 12-in. cast-iron pipes and special castings, certain sluice and air valves, and surface boxes and pipe cutter. Specification, etc., may be obtained from Messrs. Webster, Steel, & Co., London Agents, 5, East India-av, Leadenhall-street, London, E.C., on deposit of 2*l.* 2s.

FEBRUARY 9. — **London.** — MATERIALS, ETC.—The Royal Borough of Kensington invite tenders for work, materials, etc., for one year. Forms of tender may be had on application at the office of Mr. Wm. Chambers Leete, Town Clerk, Town Hall, Kensington, W.

FEBRUARY 9. — **Penge.** — SUPPLIES.—The U.D.C. of Penge invite tenders for the supply of materials, etc. Forms of tender, etc., may be obtained on application to the Surveyor, Town Hall, Anerley, S.E.

FEBRUARY 9. — **Reigate.** — MATERIALS.—Reigate R.D.C. invite tenders for one year for road materials, tools, etc. Forms may be obtained on application to the Surveyor, Mr. Arthur J. Head, 48, High-street, Reigate, Surrey.

FEBRUARY 9. — **Woolwich.** — ROAD MATERIAL, FORAGE, STORES, ETC.—The B.C. invite tenders for the supply of road material, forage, stores, etc. Forms of tender, with schedules, etc., can be obtained at the office of Mr. J. Rush Dixon, M.Inst.C.E., Borough Engineer, Town Hall, Woolwich.

FEBRUARY 10.—**Richmond (Surrey).**—MATERIALS. —The T.C. invite tenders for the supply of iron-founder's work, road materials, granite kerb, channel and setts, York kerb and flagging, bricklayers', masons', and plasterers' work, carpenters' work, plumbers', painters', and glaziers' work, etc. Form of tender, etc., may be obtained from Mr. J. H. Brierley, Borough Surveyor.

FEBRUARY 10.—**Stokesley.**—WHINSTONE AND LIMESTONE.—The Stokesley R.D.C. invite tenders for the supply of whinstone (broken and unbroken) and of limestone for macadamising purposes. Further particulars and forms of tender may be obtained on application to Mr. W. H. Dixon, District Surveyor, Kirkby-in-Cleveland, near Stokesley, S.O., or to Mr. William Richardson, Clerk to the Stokesley R.D.C., Stokesley, S.O., Yorkshire.

FEBRUARY 12. — **Desborough.** — GRANITE. — The U.D.C. invite tenders for the supply of granite. Forms of tender may be obtained from Mr. G. E. Marlow, Surveyor, Council Offices, Desborough, and will be forwarded on receipt of stamped addressed envelope.

FEBRUARY 12.—**Horncastle.**—ROAD MATERIAL.—The R.D.C. of Horncastle invite tenders for the supply of about 6,595 tons of granite and about 1,495 tons of slag. Specifications, etc., may be obtained on application at the office of the Council.

FEBRUARY 14.—**Belfast.**—STORES.—Belfast and Co. Down Railway Directors invite tenders for the supply of stores for twelve months. Samples and patterns can be seen on application to the Storekeeper, Belfast Terminus. Forms can be had on application to the Secretary, Queen's Quay Terminus, Belfast.

FEBRUARY 14.—**St. Marylebone.**—OILS, ETC.—The Council of the Metropolitan Borough of St. Marylebone invite tenders for brushes, brooms, etc.; engineers' requirements, oils, etc. Forms may be obtained on application at the Town Hall, Marylebone-lane, Oxford-street, W.

FEBRUARY 15. — **Frome.** — STORES. — The Frome U.D.C. invite tenders for the supply of materials for the year ending March 31, 1911. Particulars, etc., may be obtained upon application to Mr. F. W. Jones, A.M.Inst.C.E., Surveyor to the Council, Public Offices, Frome.

FEBRUARY 15.—**Long Sutton.**—GRANITE AND SLAG.—Tenders are invited for granite, 590 tons XX broken, and separate tenders for granite, 150 tons, X broken; slag, 300 tons, 2½ in. broken. The Council have no form of tender. Mr. Saml. S. Mossop, Clerk to the Council, Long Sutton, Lincolnshire.

FEBRUARY 16. — **Southwark.** — CONTRACTS.—Contracts from April 1, 1910, to March 31, 1911. Specifications to be seen at the Town Hall, Walworth-road, S.E.

FEBRUARY 16. — **Uckfield.** — MATERIAL, ETC.—The R.D.C. of Uckfield invite tenders for the supply of broken granite, Mendip stone, and broken Kentish ragstone, etc. Particulars and forms of tender may be obtained from Mr. E. W. Ray-Johnson, Surveyor's Office, Buxted, Uckfield, and will be forwarded on receipt of a stamped addressed envelope.

FEBRUARY 22. — **Lowisham.** — ANNUAL CONTRACTS FOR SUPPLIES, ETC. — The B.C. invite tenders for works and supplies. Specifications, etc., may be obtained at the office of the Borough Surveyor, Town Hall, Catford. Copies of the specification for the repair of roads may be had on payment of the sum of 5s.

FEBRUARY 24. — **Monks Kirby.** — GRANITE SUPPLY AND DRAWING OF MATERIALS.—The R.D.C. invite tenders for the supply of granite during two years for drawing such granite from the depôts on to the roads. Specifications, etc., may be obtained on application to the District Surveyor, Mr. A. J. Ross, Lutterworth.

Public Appointments.

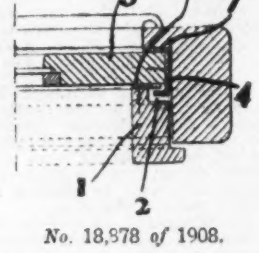
Nature of Appointment.	By whom Advertised.	Salary.	Application to be in
*DRAUGHTSMEN (2)	Durham C.C.	120*l.* and 100*l.* per annum	Feb. 9

Auction Sales.

Nature and Place of Sale.	By whom Offered.	Date of Sale.
*NURSERY STOCK, SOUTH WOODFORD.—At the Nurseries	Protheroe & Morris	Feb. 1
*BUILDING MATERIALS, STREATHAM, S.W.—On the Site	Hooker & Webb	Feb. 2
*STOCK, PLANT, AND MACHINERY, SHEPHERD'S BUSH, W.—On the Premises	J. T. Skelding & Holland	Feb. 10

PATENTS—*Continued from page* 126.

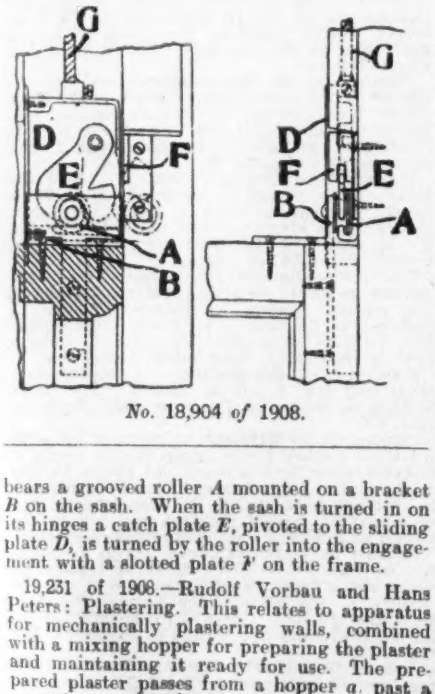
18,878 of 1908.—Mano Halász: Windows. This relates to means for preventing undue wear of draught-excluding material secured to the rabbeted surfaces of a fixed window frame, against which the sash is pressed by an inner auxiliary frame hinged to the top of the fixed frame and pressed against the sash by springs,



No. 18,878 *of* 1908.

and consists in providing an angle-plate 4 secured to the sash 3, and engaging a groove formed by a plate 6 and the rabbet 2 in the auxiliary frame 1, so that when the sash is drawn forward over the weather strip and lowered it is held away from the draught-excluding strip 7 on the fixed frame.

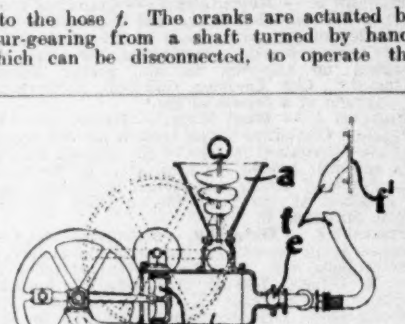
18,904 of 1908.—James Shaw Donnan and James Jardine: Windows. This relates to windows having hinged sliding sashes, in which the sash-cord *G* is attached to a sliding plate *D*, having an upturned end on which



No. 18,904 *of* 1908.

bears a grooved roller *A* mounted on a bracket *B* on the sash. When the sash is turned in on its hinges a catch plate *E*, pivoted to the sliding plate *D*, is turned by the roller into the engagement with a slotted plate *F* on the frame.

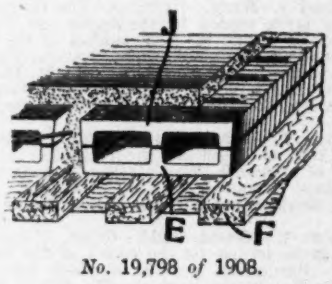
19,231 of 1908.—Rudolf Vorbau and Hans Peters: Plastering. This relates to apparatus for mechanically plastering walls, combined with a mixing hopper for preparing the plaster and maintaining it ready for use. The prepared plaster passes from a hopper *a* past a non-return valve into a cylinder *d*, and is forced out past a valve *e* by means of a piston *c* actuated by a crank. The apparatus is in duplicate, and a constant supply is delivered into the hose *f*. The cranks are actuated by spur-gearing from a shaft turned by hand, which can be disconnected, to operate the



No. 19,231 *of* 1908.

mixers by bevel gearing. The mouthpiece f^1 may have any desired shape to suit profiled portions of the walls or ceilings.

19,793 of 1908.—Antoine Deschaux: Floors. This relates to hollow blocks for forming permanent centres for a reinforced concrete floor, consisting of two tiles *E*, *J*, having inclined sides and supported on temporary framing F, and with or without spacing pieces and cement in the joints. The reinforcing bars are



No. 19,798 *of* 1908.

then placed in position between and above the blocks, and the concrete is filled in. The lower face may be afterwards plastered. The tiles may be made of plaster, mortar, cement, concrete, clay, or earth, and may be reinforced with fibrous materials, linen, metal rods, reeds, or wood.

SOME RECENT SALES OF PROPERTY:

ESTATE EXCHANGE REPORT.

January 17.—By MORGAN, BAINES, & CLARK.
Thornton Heath.—2, Bensham Manor-rd., u.t. 94 yrs., g.r. 6*l.*, p. £50

January 18.—By WHITE, DRUCE, & BROWN.
Maida Vale.—8, Greville-pl., u.t. 35 yrs., g.r. 27*l.*, p. 1,160

January 20.—By NEWBON, SHEPHARD, & EDWARDS.
Islington.—17, Florence-st., f., y.r. 45*l.* 580
27, Cleveland-rd., u.t. 42 yrs., g.r. 4*l.* 10*s.*, o.r. 40*l.* 255

Contractions used in these lists.—F.g.r. for freehold ground-rent; l.g.r. for leasehold ground-rent; l.g.r. for improved ground-rent; g.r. for ground-rent; r. for rent; f. for freehold; c. for copyhold; l. for leasehold; p. for possession; e.r. for estimated rental; w.r. for weekly rental; q.r. for quarterly rental; y.r. for yearly rental; u.t. for unexpired term; p.a. for per annum; yrs. for years; la. for lane; st. for street; rd. for road; sq. for square; pl. for place; ter. for terrace; cres. for crescent; av. for avenue; gdns. for gardens; yd. for yard; gr. for grove; b.h. for beerhouse; p.h. for public-house; o. for offices; s. for shops; ct. for court.

PRICES CURRENT OF MATERIALS.

**** Our aim in this list is to give, as far as possible, the *average* prices of materials, not necessarily the lowest. Quality and quantity obviously affect prices—a fact which should be remembered by those who make use of this information.

BRICKS, &c.

Per 1000 Alongside, in River. £ s. d.
Best Stocks 1 8 0

Per 1000, Delivered at Railway Depôt.

	£ s. d.		£ s. d.
Picked Stocks for Facings ...	2 10 0	D'ble Stretchers	16 7 6
Flettons	1 6 0	Double Headers	13 7 6
Best Fareham Red	3 12 0	One Side and two Ends	17 7 6
Best Red Pressed Ruabon Facing	5 0 0	Two Sides and one End.....	18 7 6
Best Blue Pressed Staffordshire ..	3 15 0	Splays & Squints	15 17 6
Do. Bullnose.....	4 0 0	Best Dipped Salt Glzd. Str'tch'rs	10 17 6
Best Stourbridge Fire Bricks ...	3 14 0	Headers	10 7 6
GLAZED BRICKS.		Quoins, Bullnose, and Flats	14 7 6
Best White and Ivory Glazed Stretchers	10 17 6	D'ble Stretchers	16 7 6
Headers	10 7 6	Double Headers	13 7 6
Quoins, Bull-nose, and Flats	14 7 6	One Side and two Ends	17 7 6
		Two Sides and one End.....	18 7 6
		Splays & Squints	15 17 6

Second Quality White and Dipped Salt Glazed, £1 *5s.* per 1000 less than best.

	s. d.	
Thames and Pit Sand	6 6	per yard delivered.
Thames Ballast...	5 0	,, ,,
Best Portland Cement.....	28 0	per ton, ,,
Best Ground Blue Lias Lime	19 0	,, ,,

NOTE.—The cement or lime is exclusive of the ordinary charge for sacks.

Grey Stone Lime ..... 11*s.* 6*d.* per yard, delivered.
Stourbridge Fireclay in sacks 27*s.* 0*d.* per ton at rly. dpt.

STONE.

Per Ft. Cube.	s. d.
BATH STONE — delivered on road waggons, Paddington Depôt.....	1 6½
Do. do. delivered on road waggons, Nine Elms Depôt	1 8½
PORTLAND STONE (20 ft. average)—	
Brown Whitbed, delivered on road waggons, Paddington Depôt, Nine Elms Depôt, or Pimlico Wharf	2 1
White Basebed, delivered on road waggons, Paddington Depôt, Nine Elms Depôt, or Pimlico Wharf	2 2½

Per Ft. Cube, Delivered at Railway Depôt.

	s. d.		s. d.
Ancaster in blocks..	1 10	Red Corsehill in blocks	2 2
Beer in blocks	1 6	Closeburn Red Freestone	2 0
Greenshill in blocks	1 10	Red Mansfield Free-stone	2 4
Darley Dale in blocks	2 4		

YORK STONE—*Robin Hood Quality.*	s. d.
Scappled random blocks	2 10

Per Ft. Super., Delivered at Railway Depôt.

6 in. sawn two sides landings to sizes (under 40 ft. super.).....	2 3
6 in. rubbed two sides ditto, ditto.....	2 6
3 in. sawn two sides slabs (random sizes)	0 11½
2 in. to 2½ in. sawn one side slabs (random sizes)	0 7½
1½ in. to 2 in. ditto, ditto	0 6

Per Ft. Cube, Delivered at Railway Depôt.

Scappled random blocks	3 0

Per Ft. Super., Delivered at Railway Depôt.

6 in. sawn two sides landings to sizes (under 40 ft. super.)	2 8
6 in. rubbed two sides ditto	3 0
3 in. sawn two sides slabs (random sizes)	1 2
2 in. self-faced random flags	0 5

SLATES.

Per 1000 of 1200 at Railway Depot.

In. In.	£ s. d.	In. In.	£ s. d.
20×10 best blue Bangor	13 2 6	20×10 best Eur'ka unfading green	15 17 6
20×12 ditto	13 17 6	20×12 ditto	18 7 6
20×10 1st quality ditto	13 0 0	18×10 ditto	13 5 0
20×12 ditto	13 15 0	16×8 ditto	10 5 0
16×8 ditto.....	7 5 0	20×10 permanent green	11 12 6
22×10 best blue Portmadoc ...	12 12 6	18×10 ditto	9 12 6
16×8 ditto.....	6 12 6	16×8 ditto.....	6 12 6

TILES.

At Railway Depot.

	s.	d.
Best plain red roofing (per 1000)	42	0
Hip and Valley (per doz.)	3	7
Best Broseley (per 1000)	50	0
Do. Ornamental (per 1000)	52	6
Hip and Valley (per doz.)	4	0
Best Ruabon red, brown, or brindled (Edw'ds) (per 1000)	57	6
Do. Ornamental (per 1000)	60	0
Hip (per doz.)	4	0
Valley (per doz.)	3	0
Best Red or Mottled Staffordshire do. (Peakes) (per 1000)	51	9
Do. Ornamental do. (per 1000)	54	6
Hip (per doz.)	4	1
Valley (per doz.	3	8
Best "Rosemary" brand plain (per 1000)	48	0
Best Ornamental (per 1000)	50	0
Hip (per doz.)	4	0
Valley (per doz.)	3	8
Best "Hartshill" brand, plain sand-faced (per 1000)	50	0
Do. pressed (per 1000)	47	6
Do. Ornamental (per 1000)	50	0
Hip (per doz.)	4	0
Valley (per doz.)	3	6
Staffords. (Hanley) Reds or Brindled (per 1000)	42	6
Hand-made sand-faced (per 1000)	45	0
Hip (per doz.)	4	0
Valley (per doz.)	3	6

WOOD.

Building Wood.	At per standard. £	s.	d.		£	s.	d.
Deals: best 3 in. by 11 in. and 4 in. by 9 in. and 11 in.	14	0	0	...	15	10	0
Deals: best 3 by 9	13	10	0	...	14	10	0
Battens: best 2½ in. by 7 in. and 8 in., and 3 in. by 7 in. and 8 in.	11	10	0	...	12	10	0
Battens: best 2½ by 6 and 3 by 6	0	10	0	...	less than 7 in. and 8 in.		
Deals: seconds	1	0	0	less than best.			
Battens: seconds	0	10	0	"	"		
2 in. by 4 in. and 2 in. by 6 in.	9	10	0	...	10	10	0
2 in. by 4½ in. and 2 in. by 5 in.		0	0	...	10	0	0
Foreign Sawn Boards— 1 in. and 1¼ in. by 7 in.	0	10	0	more than battens.			
¾ in.	1	0	0	"			
Fir timber: best middling Dantzig or Memel (average specification)	At per load of 50 ft. 5	0	0	...	5	10	0
Seconds	4	10	0	...	5	0	0
Small timber (8 in. to 10 in.)	3	17	6	...	4	0	0
Small timber (6 in. to 8 in.)	3	5	0	...	3	10	0
Swedish balks	2	12	6	...	3	0	0
Pitch-pine timber (30 ft. average)	4	10	0	...	5	5	0

Joiners' Wood.	At per standard. £	s.	d.		£	s.	d.
White Sea: first yellow deals, 3 in. by 11 in.	24	10	0	...	25	10	0
3 in. by 9 in.	22	10	0	...	23	10	0
Battens, 2½ in. and 3 in. by 7 in.	17	0	0	...	18	0	0
Second yellow deals, 3 in. by 11 in.	19	0	0	...	20	0	0
" " 3 in. by 9 in.	18	0	0	...	19	10	0
Battens, 2½ in. and 3 in. by 7 in.	14	0	0	...	15	0	0
Third yellow deals, 3 in. by 11 in. and 9 in.	14	0	0	...	15	0	0
Battens, 2½ in. and 3 in. by 7 in.	1	10	0	...	12	10	0
Petersburg: first yellow deals, 3 in. by 11 in.	21	10	0	...	22	10	0
Do. 3 in. by 9 in.	18	10	0	...	19	10	0
Battens	14	0	0	...	15	0	0
Second yellow deals, 3 in. by 11 in.	16	10	0	...	17	10	0
Do. 3 in. by 9 in.	15	0	0	...	16	0	0
Battens	11	10	0	...	12	10	0
Third yellow deals, 3 in. by 11 in.	13	10	0	...	14	10	0
Do. 3 in. by 9 in.	13	0	0	...	14	0	0
Battens	10	10	0	...	11	0	0
White Sea and Petersburg— First white deals, 3 in. by 11 in.	15	0	0	...	16	0	0
" " 3 in. by 9 in.	14	0	0	...	14	10	0
Battens	11	10	0	...	12	10	0
Second white deals, 3 in. by 11 in.	14	0	0	...	15	0	0
" " 3 in. by 9 in.	13	0	0	...	14	0	0
Battens	10	10	0	...	11	0	0
Pitch-pine: deals	19	0	0	...	21	0	0
Under 2 in. thick extra	0	10	0	...	1	0	0
Yellow pine—First, regular sizes	44	0	0	upwards.			
Oddments	32	0	0	"			
Seconds, regular sizes	33	0	0	"			
Oddments	28	0	0	"			
Kauri Pine—Planks, per ft. cube	0	3	6	...	0	5	0
Dantzig and Stettin Oak Logs— Large, per ft. cube	0	3	0	...	0	3	9
Small " "	0	2	6	...	0	2	6
Wainscot Oak Logs, per ft. cube	0	5	6	...	0	6	0
Dry Wainscot Oak, per ft. sup. as inch	0	0	8½	...	0	0	9½
¾ in. do. do	0	0	7	...	—		
Dry Mahogany—Honduras, Tabasco, per ft. super. as inch	0	0	10	...	0	1	1
Selected, Figury, per ft. super as inch	0	1	6	...	0	2	6
Dry Walnut, American, per ft. super. as inch	0	0	10	...	0	1	0
Teak, per load	18	0	0	...	22	0	0
American Whitewood Planks, per ft. cube	0	4	0	...	0	5	0

Prepared Flooring, etc.—	Per square. £	s.	d.		£	s.	d.
1 in. by 7 in. yellow, planed and shot	0	13	6	...	0	17	0
1 in. by 7 in. yellow, planed and matched	0	14	0	...	0	18	0
1¼ in. by 7 in. yellow, planed and matched	0	16	6	...	1	0	0
1 in. by 7 in. white, planed and shot	0	12	0	...	0	14	6
1 in. by 7 in. white, planed and matched	0	12	6	...	0	15	0
1¼ in. by 7 in. white, planed and matched	0	15	0	...	0	16	6
¾ in. by 7 in. yellow, matched and beaded or V-jointed brds.	0	11	0	...	0	13	6
1 in. by 7 in. " "	0	14	0	...	0	18	0
¾ in. by 7 in. white " "	0	10	0	...	0	11	6
1 in. by 7 in. " "	0	12	9	...	0	15	0

6 in. at 6d. to 9d. per square less than 7 in.

JOISTS, GIRDERS, &c.

	In London, or delivered Railway Vans, per ton. £	s.	d.		£	s.	d.
Rolled Steel Joists, ordinary sections	7	0	0	...	7	10	0
Compound Girders, ordinary sections	9	0	0	...	10	0	0
Steel Compound Stanchions	11	0	0	...	12	0	0
Angles, Tees, and Channels, ordinary sections	9	0	0	...	10	0	0
Flitch Plates	9	0	0	...	9	10	0
Cast Iron Columns and Stanchions including ordinary patterns	7	10	0	...	8	10	0

METALS.

Iron—	Per ton, in London. £	s.	d.		£	s.	d.
Common Bars	8	10	0	...	9	0	0
Staffordshire Crown Bars, good merchant quality	8	15	0	...	9	5	0
Staffordshire "Marked Bars"	10	10	0	...	—		
Mild Steel Bars	8	15	0	...	9	5	0
Hoop Iron, basis price	9	5	0	...	9	10	0
" " Galvanised	17	0	0	...	—		
("And upwards, according to size and gauge.)							
Sheet Iron Black— Ordinary sizes to 20 g.	9	15	0	...	—		
" " 24 g.	10	15	0	...	—		
" " 26 g.	12	5	0	...	—		
Sheet Iron, Galvanised, flat, ordinary quality— Ordinary sizes, 6 ft. by 2 ft. to 3 ft. to 20 g.	15	0	0	...	—		
Ordinary sizes to 22 g. and 24 g.	15	10	0	...	—		
" " 26 g.	16	10	0	...	—		
Sheet Iron, Galvanised, flat, best quality— Ordinary sizes to 20 g.	18	0	0	...	—		
" " 22 g. and 24 g.	18	10	0	...	—		
" " 26 g.	20	0	0	...	—		
Galvanised Corrugated Sheets— Ordinary sizes, 6 ft. to 8 ft. 20 g.	14	10	0	...	—		
" " 22 g. and 24 g.	14	15	0	...	—		
" " 26 g.	16	5	0	...	—		
Best Soft Steel Sheets, 6 ft. by 2 ft. to 3 ft. to 20 g. and thicker	12	0	0	...	—		
Best Soft Steel Sheets, 22 g. & 24 g.	13	0	0	...	—		
" " 26 g.	15	0	0	...	—		
Cut Nails, 3 in. to 6 in.	10	10	0	...	11	0	0
(Under 3 in., usual trade extras.)							

Lead, &c.	Per ton, in London. £	s.	d.		£	s.	d.
Lead—Sheet, English, 4lb. and up.	17	5	0	...	—		
Pipe in coils	17	15	0	...	—		
Soil pipe	20	15	0	...	—		
Compo pipe	20	15	0	...	—		
Zinc—Sheet—	In casks of 10 cwt.						
Vielle Montagne	28	12	6	...	—		
Silesian	28	5	0	...	—		
Zinc, in bundles, 1s. per cwt. extra.							
Copper— Strong Sheet, per lb.	0	1	0	...	—		
Thin "	0	1	1	...	—		
Copper nails "	0	0	10	...	—		
Copper wire "	0	0	10	...	—		
Brass— Strong Sheet "	0	0	11	...	—		
Thin "	0	1	0	...	—		
Tin—English Ingots "	0	1	6	...	—		
Solder—Plumbers' "	0	0	7	...	—		
Tinmen's "	0	0	9	...	—		
Blowpipe "	0	1	0	...	—		

ENGLISH SHEET GLASS IN CRATES OF STOCK SIZES.

Per Ft., Delivered.

15 oz. thirds	2¼d.	26 oz. fourths	3d.
" fourths	1¾d.	32 oz. thirds	4¾d.
21 oz. thirds	3d.	" fourths	4¼d.
" fourths	2¼d.	Fluted Sheet, 15 oz.	3¼d
26 oz. thirds	4d.	" 21 oz.	4¼d.

ENGLISH ROLLED PLATE IN CRATES OF STOCK SIZES.

Per Ft., Delivered.

⅛ Hartley's	2¼d.	Figured, Oxford	
⅛ "	2¼d.	Rolled, & 'Oceanic'	
¼ "	2¼d.	Glass, white	3¼d.
		Ditto, tinted	5d.

Oils, &c.		£	s.	d.
Raw Linseed Oil in pipes	per gallon	0	2	11
" " in barrels	"	0	3	0
" " in drums	"	0	3	3
Boiled " in barrels	"	0	3	3
" " in drums	"	0	3	6
Turpentine in barrels	"	0	3	4
" in drums	"	0	3	6
Genuine Ground English White Lead	per ton	20	10	0
Red Lead, Dry	"	19	10	0
Best Linseed Oil Putty	per cwt.	0	7	6
Stockholm Tar	per barrel	1	12	0

Varnishes, &c.	Per gallon. £	s.	d.
Fine Pale Oak Varnish	0	8	0
Pale Copal Oak	0	10	6
Superfine Pale Elastic Oak	0	12	6
Fine Extra Hard Church Oak	0	10	0
Superfine Hard-drying Oak, for seats of Churches	0	14	6
Fine Elastic Carriage	0	12	0
Superfine Pale Elastic Carriage	0	16	0
Fine Pale Maple	0	10	0
Finest Pale Durable Copal	0	18	0
Extra Pale French Oil	1	1	0
Eggshell Flating Varnish	0	18	0
White Pale Enamel	1	4	0
Extra Pale Paper	0	12	0
Best Japan Gold Size	0	10	6
Best Black Japan	0	16	0
Oak and Mahogany Stain	0	9	0
Brunswick Black	0	8	0
Berlin Black	0	16	0
Knotting	0	10	9
French and Brush Polish	0	10	6

TENDERS.

Communications for insertion under this heading should be addressed to "The Editor," and must reach us *not later than* 10 *a.m. on Thursday*. [N.B.—We cannot publish Tenders unless authenticated either by the architect or the building owner; and we cannot publish announcements of Tenders accepted unless the amount of the Tender is stated, nor any list in which the lowest Tender is under 100*l.* unless in some exceptional cases and for special reasons.]

* Denotes *accepted*. † Denotes *provisionally accepted*.

ACTON.—For making up and paving passages, Valetta-road, W., for the Urban District Council. Mr. D. J. Ebbetts, Surveyor, 57, High-street, Acton, W.:—

		Passage No.
W. & C. French, Buckhurst-hill, Essex*	£282 4 0	1
	109 8 8	2
	56 7 7	3
	251 12 2	5
	120 8 5	6
	105 14 3	11
	24 17 9	12
H. Morecroft, Acton*	27 0 0	4

BEAUDESERT (Staffordshire).—For water supply and fire protection works, for the Marquis of Anglesey. Messrs. G. & F. W. Hodson, M.Inst.C.E., Loughborough:—

G. Lawson & Son	£3,457	Lowe & Sons	£2,334
A. E. Nunn & Co.	2,770	W. Cunliffe & Co., Ltd.	2,293
H. Ashley	2,750	R. Kershaw & Sons	2,190
G. Hodges	2,394	G. Law, Kidderminster*	2,169
W. Moss & Sons, Ltd.	2,349		
C. Chamberlain	2,345		

BEDALE.—For Bedale and Aiskew waterworks, contract A, for the Rural District Council. Messrs. Fairbank & Son, Engineers, Lendal-chambers, York:—

G. Dougill & Sons	£3,260 0 0
C. E. & I. W. Gibson	3,250 5 11
W. H. Hill	3,195 0 0
Staveley Coal & Iron Co.	3,180 15 0
D. Armitage	3,131 4 0
S. C. Brebner & Co.	3,130 10 0
Bushby & Sons	3,126 5 6
G. H. York & Co.	3,042 10 0
J. Lant, Newcastle-on-Tyne*	298 7 2

[Nine lowest tenders of nineteen tenders.]

BINGLEY.—For extension of shed at Argyll Mills Messrs. T. Barker & Son, architects, London and Midland Bank-chambers, Bradford:—

Masons, Bricklayers, and Excavators: Brown & Son, Bingley*	£757 10 0
Joinery: G. Hobson, Shipley*	245 0 0
Slater: W. Thornton, Bingley*	115 10 0
Plumber: S. Rushworth, Shipley*	69 0 0
Plasterer: H. Spurr & Sons, Bingley*	45 11 7
Painter: A. Bagnall & Son, Shipley*	33 14 4
Patent Glazing: Mellowes & Co., Ltd., Sheffield*	100 11 0
Reinforced Concrete: Yorks Hennebique Contracting Co., Leeds*	287 10 0

BITTON.—For the formation of playgrounds and erection of boundary walls at Council school, near Bristol, for Gloucestershire Education Committee. Mr. R. S. Phillips, Architect, Midland Bank-chambers, Gloucester:—

Adams & Jefferies, Oldland, Bristol* £315

[Eight tenders in all.]

BOURNEMOUTH.—For extension of Alum Chine surface drain, for the Town Council. Mr. F. W. Lacey, Borough Engineer, Municipal Offices, Bournemouth:—

Grounds & Newton, Bournemouth‡ £748

‡ Subject to confirmation by the Council.

BRIGHTON.—For alterations to the sanitary arrangements of the lavatories at West-street Shelter Hall, for the Borough Council:—

Hockley & Co.	£349	Saunders Bros.	£259
G. R. Lockyer	337	Bostel Bros., Ltd.	250
G. Jennings, Ltd.	294	J. Gregory, 212 Ditchling-road, Brighton*	213
G. A. McKellar	286		
W. A. Field & Co.	275		

BRIGHTON.—For erecting an additional office for police purposes at the Town Hall, for the Borough Council:—

Bostel Bros.	£530	W. A. Field & Co., 20, Preston-street, Brighton*	£350
G. R. Lockyer	394		
G. A. McKellar	390		
Saunders Bros.	375		

BRISTOL.—For works at Council school, Mangotsfield Staple Hill, for Gloucestershire Education Committee. Mr. R. S. Phillips, Architect, Midland Bank-chambers, Gloucester:—

J. Coles & Sons, Clevedon* £481

[Seven tenders in all.]

CARDIFF.—For extensions to Wesleyan Sunday schools, Cathays, Cardiff. Mr. Henry Budgen, F.R.I.B.A, 95, St. Mary-street, Cardiff:—

C. Totterdell	£1,484 3	D. Davies & Sons	£1,250 0
Gough Bros.	1,340 0	E. D. W. Evans	1,249 0
E. R. Evans & Bros.	1,298 0	J. Allan, Ltd.	1,241 0
W. H. Evans	1,296 0	E. Turner & Sons	1,238 0
G. Hallett	1,270 0	W. T. Morgan	1,234 0
W. Symonds & Sons	1,257 15	Knox & Wells*	1,195 0
		W. C. Ransom‡	1,125 0

[All of Cardiff.]

‡ Withdrawn.

CHELMSFORD.—For erecting an elementary school at Trinity-road, Springfield, for the Education Committee. Messrs. C. & W. H. Pertwee, architects, Chelmsford. Quantities by Mr. J. B. H. Low, Chelmsford:—

Johnson & Hawkes	£15,633	J. S. Hammond & Son	£14,438
J. L. Glascock & Son	15,620	H. Smith	14,311
W. Lawrence & Sons	15,444	H. Flint	14,287
R. E. Nightingale	15,260	T. Partington & Son	14,100
F. G. Minter	15,178	G. Henson & Son	14,040
G. Grimwood & Sons	14,989	Spencer, Santo, & Co., Ltd.	14,016
J. Youngs & Sons	14,975	T. J. Bailey	13,994
J. Smith & Son	14,945	Clark & Sons	13,990
J. Rayner	14,925	C. Roper	13,989
Mason & Son	14,750	F. Weight	13,800
C. H. Gibson & Sons	14,546	H. Potter & Son, Chelmsford*	13,475
W. E. Blake	14,495		
F. Bennett	14,450		

CHEPPING WYCOMBE.—For private street improvement works, Kitchener-road and Desboro'-avenue, for the Corporation. Mr. T. J. Rushbrooke, Borough Surveyor, 77, Easton-street, High Wycombe:—

Kitchener-road.

W. H. Sairey	£980 0	J. Smith	£805 15
A. F. Lee	915 0		

[Surveyor's estimate, £339.]

Desboro'-avenue.

W. H. Sairey	£320 0	J. Smith	£305 10
A. F. Lee	315 0		

[Surveyor's estimate, £310.]

CHOPWELL.—For erecting six shops, etc., for Mr. M. F. Rupp. Mr. D. M. Spence, architect and surveyor, Shotley Bridge:—

J. A. M. Henderson, Jarrow-on-Tyne* .. £2,197

DERBY.—For structural alterations at the Union Workhouse, for the Guardians. Mr. F. C. Coulthurst, architect, 4, Albert-street, Derby:—

H. H. Springett, Babington-lane, Derby* £98 10

[Ten tenders.]

FOLKESTONE.—For extension of the Public Library on Grace Hill, for the Corporation. Mr. A. E. Nichols, Borough Surveyor, etc., Folkestone. Quantities by Borough Surveyor:—

Hayward & Paramor, Coolinge-lane, Folkestone* £3,489

FROME.—For new chapel, for the Trustees of the United Methodist chapel. Mr. W. S. Skinner, F.R.I.B.A., 16, Baldwin-street, Bristol:—

F. Chown	£1,370 0 0	W. Foster....	£1,175 0 0
G. Humphries & Son.....	1,300 0 0	E. Waters & Son.....	1,077 0 0
E. G. Padfeela	1,261 15 5	Hodder & Sons	1,000 0 0
J. Bird & Son	1,200 0 0	C. Barnes	970 0 0
W. Cowlin & Son.	1,190 0 0	A. J. Bray & Co., Bristol*	898 0 0
Parsons Bros.	1,177 0 0		

HARROGATE.—For the works required in the erection of a new wing and other alterations to the Prince of Wales hotel, Harrogate, for Mr. C. S. Norton. Messrs. Richardson & Bell, A.R.I.B.A., architects, Wakefield:—

J. Simpson & Sons, Harrogate* £4,935

[For the whole of the works.]

HINCKLEY.—For additions to factory, for Messrs. S. Davis & Sons. Messrs. Heaton & Walker, architects and surveyors, 3, The Borough, Hinckley:—

J. E. Johnson & Son.....	£1,550 0 0	W. Potter....	£1,379 10 0
J. Hall & Son	1,489 0 0	Bentley & Co.	1,379 0 0
A. E. Mould ..	1,459 19 1	G. S. Clarke ..	1,378 0 0
T. G. Rowley	1,450 0 0	C. Flavell	1,362 8 0
W. M. Sharp..	1,434 5 0	Southam & Son	1,358 9 0
Cole & Sons ..	1,428 0 0	S. Chaplin....	1,355 0 0
W. H. Littler & Son.....	1,420 0 0	A. Jeffcote ..	1,345 10 0
T. Hickman ..	1,399 0 0	T. Goodman & Son, Hinckley*	1,328 0 0
G. Greaves ..	1,383 6 6		

HORLEY.—For private street works, Chestnut-road, for Reigate Rural District Council. Mr. A. J. Head, Surveyor, 48, High-street, Reigate:—

G. S. Faulkner ..	£327 0	W. Whitmore,	
H. M. Blaker	289 15	Horley*	£222 10

HORNCHURCH.—For structural alterations to the school at cottage homes, Hornchurch, near Romford, for the Guardians of St. Leonard, Shoreditch. Mr. F. J. Smith, F.R.I.B.A., Parliament Mansions, Victoria-street, S.W.:—

Lown & Co., 97, Crayford-road, Holloway, N.† £392 7 8

Provisionally accepted; sanction of L.G.B. to be obtained.

HULL.—For alterations and additions to Wawne-street school, for the Education Committee. Mr. J. H. Hirst, City Architect, Town Hall, Hull:—

D. L. Robinson	£3,426 0 0	Quibell, Son, & Greenwood	£2,974 10 0
Hull General Builders, Ltd.	3,226 0 0	J. T. Levitt ..	2,959 15 4
F. Southern ..	3,193 2 7	J. H. Fenwick	2,900 0 0
V. Knowles ..	3,150 0 0	F. Singleton ..	2,858 0 0
G. Jackson & Son.....	3,044 14 0	G. H. Panton	2,849 0 0
T. Goates & Son.....	2,981 0 0	M. Harper*....	2,842 0 0

[All of Hull.]

KIRTON (near Boston).—For the erection of three villas, warehouses, stables, and offices, for Messrs. Tunnard Bros., Kirton, near Boston. Plans prepared by Mr. Henry Kidd, Solent House, Kirton:—

J. Langley & Sons, Kirton, near Boston* £1,150

MILNSBRIDGE.—For erecting two shops, Longroyd Bridge, Huddersfield. Messrs. Ainley & Hirst, architects, surveyors, etc., Slaithwaite:—

Masons' Work: A. Graham & Co., Huddersfield*	£170 0 0
Joiners' Work: G. Ainley & Sons, Crosland Moor*	145 0 0
Plumbers' Work: S. Thackery, Huddersfield*	57 0 0
Painters' Work: A. Preston, Huddersfield*..	14 19 0
Electric Lighting: E. Brook & Co., Huddersfield*	13 6 0
Concreters' Work: J. Cooke, Huddersfield*..	6 7 9

NANTWICH.—For erecting new Council schools, Bean-street, for Cheshire County Council Education Department (Sub-Committee for Nantwich Union area). Mr. H. H. Brown, architect, Brazennose House, 20, Brazennose-street, Manchester:—

M. Stone & Sons ..	£11,147	J. Dolan & Son ..	£10,623
Young, Tinker, & Young	11,067	J. Hamilton & Son	10,558
F. Matthews	11,035	R. Carlyle	10,525
R. Neill & Sons ..	10,966	Birchall Bros., Middlewich* ..	10,297
Cox & Vaughan ..	10,698	Clayton Bros.	10,102
J. Harding	10,690		

NORTHWICH.—For erecting Darwin-street Council school, for the Administrative Sub-Committee for the Northwich District of Chester. Mr. W. Hemingway, A.R.I.B.A., Bolton. Quantities by Mr. J. H. Harris, Liverpool:—

W. Wood, Hartford, Northwich* £5,700

[Lowest tender.]

NORWICH.—For alterations and additions to th nurses' home at the workhouse, for the Guardi ans Messrs. Morgan & Buckingham, architects and surveyors Upper King-street, Norwich:—

Scarles Bros., Norwich* £1,377 7

PATCHAM.—For laying mains to supply water to small holdings, for Brighton Borough Council:—

J. Pennington	£223 17 6
W. H. Holman & Co.....	211 5 10
Bostel Bros., Ltd., 18 and 19, Duke-street, Brighton*	209 17 8
A. Wilcox	189 5 2

PLYMOUTH.—For hot and cold water supply to the old infirmary at the workhouse, for the Guardians. Messrs. Thornely, Rooke, & Barron, architects, 11, The Crescent, Plymouth:—

E. Cock, 18, Albert-road, Plymouth*.. £107 17

SUTTON.—For sewering, kerbing, channelling, etc., of Grennell-road, for the Urban District Council. Mr. C. Chambers Smith, Engineer and Surveyor, Municipal Offices, Sutton, Surrey:—

T. Free & Son, Ltd., Maidenhead, Berks £967 16 5

[Lowest tender.]

TREDWORTH.—For erecting class rooms and other work at Council schools, for Gloucester Education Committee. Messrs. Medland & Pryer, Architects, Clarence-street, Gloucester. Quantities by Messrs. Vale & Kingsford, St. Aldate-street, Gloucester:—

W. Jones, Worcester-street, Gloucester .. £986

TRELEWIS (Wales).—For erecting nine houses on the Gilfach Maen Estate, for the Gilfach Maen Building Club. Mr. T. Edmund Rees, architect and surveyor, Merthyr Tydfil:—

A. Jones.....	£195 0 0 225 10 0	J. Morgan	£190 0 0 18 0 0
H. Davis	225 8 8	E. P. Davies ..	181 0 0 195 0 0
J. T. James ..	195 0 0 215 0 0	B. Pugh, Nelson*	173 0 0 10 10 0

[The higher tender of the two in each case provides for a bedroom over kitchen.]

WEST HAM.—For the erection of a boys' new school and extension of the existing schools. Messrs. Newman & Jacques, architects, 2, Fen-court, Fenchurch-street, E.C. Quantities by Messrs. R. L. Curtis & Sons, Finsbury-square, E.C.:—

A. Webb	£12,859	T. W. Moss	£11,241
E. Lawrance & Son, Ltd.	12,353	A. E. Symes	10,997
W. Lawrence & Son	11,500	J. W. Jerram	10,876
R. Woollaston & Co.	11,455	W. J. Maddison ..	10,550
F. J. Coxhead	11,400	H. C. Horswill, Forest Gate* ..	10,097

WEST HAM.—For painting, cleaning, etc., at the Fever Hospital, Samson-street, Plaistow, for the Borough Council:—

C. J. Kemp....	£620 0 0	Wright & Co...	£382 18 0
E. & A. Jenkin	572 12 0	A. H. Innes....	377 5 9
F. Warman....	561 10 6	C. P. Roberts & Co.....	369 0 0
H. C. Horswill	530 0 0	Woollaston & Co.	355 0 0
W. Harris	518 0 0	J. Scott-Fenn, Woolwich* ..	344 0 0
E. Lovely	516 16 0	E. Dyke	333 0 0
King & Barker	483 0 0	S. Squire	323 14 10
J. W. Jerram..	473 0 0	J. Hocking	318 0 0
Woollaston Bros.	423 0 0	J. Moseley	247 0 0
Burns & Co....	406 8 6		
J. Oram & Son	402 8 0		
J. Stokes & Sons	396 13 0		

WOMBRIDGE, OAKENGATES (Salop).—For a new infants' council school at Harts Hill, for the Salop County Council Elementary Education Department. Messrs. Dickens-Lewis & Haynes, Architects, Talbot-chambers, Shrewsbury:—

J. Carver, Wellington, Salop* £2,279 17

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